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NEW SERIES

TENTH ANNUAL

ARCHÆOLOGICAL REPORT

ONTARIO

1999

ANNUAL ARCHAEOLOGICAL REPORT, ONTARIO

Volume 10(New Series) 1999

Volumes in the New Series of the Annual Archaeological Report, Ontario are published annually by the Ontario Heritage Foundation, a not-for-profit agency of the government of Ontario.

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Front Cover Illustration:
A selection of projectile points recovered from the Kings Point site (AhGs-24): Top right:Early Archaic Bifurcate Base; Top left: Middle Archaic Brewerton; Middle left to right:Late Archaic,Genesee, Innes, Crawford Knoll; Bottom left and right: Hind and Middle Woodland Vanport. Photograph submitted by *Archaeological Services Inc.*

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ANNUAL ARCHAEOLOGICAL REPORT, ONTARIO

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Dena Doroszenko
Editor

The objective of the New Series of the Annual Archaeological Report, Ontario, is to provide a publication outlet for individuals wishing to publish abstracts describing the results of archaeological fieldwork conducted in the province of Ontario.

These abstracts will be of interest to those members of the general public who want to learn about the prehistoric and historic record of Ontario and will be a valuable reference tool to archaeologists as well as specialists in many other professions.

The Ontario Heritage Foundation seeks to preserve, protect and promote Ontario's archaeological, architectural, cultural, historical and natural heritage for the benefit and enjoyment of present and future generations of Canadians.

A not-for-profit agency of the Government of Ontario, the Ontario Heritage Foundation was established by the Province of Ontario in 1968 and operates under the Ontario Heritage Act.

FROM THE EDITOR

This issue is the tenth volume of the Annual Archaeological Report, Ontario(AARO), a continuation, in a new form, of a series originally published by the provincial government between 1887 and 1928. This volume contains reports on archaeological work conducted in the Province of Ontario during 1998. As this volume represents ten years of reporting the archaeological work that occurs in the province annually, an anniversary cover has been designed utilizing a photograph submitted by Archaeological Services Inc.

Layout and design of this volume was conducted in-house by the editor. I would like to thank Ann Ho, Dana Fountain and Veronica Araujo for assisting in proofreading this volume. I am also grateful to Manuel Olievera for his assistance with the graphics for this volume, particularly the cover.

Dena Doroszenko

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CONSERVATION ACTIVITIES: MATERIAL CULTURE RESEARCH ON ARCHAEOLOGICAL COLLECTIONS: PARKS CANADA, ONTARIO SERVICE CENTRE

SUZANNE PLOUSOS, HELEN DUNLOP AND PETER SATTELBERGER

THREATENED ARCHAEOLOGICAL COLLECTIONS (TAC)

The Parks Canada, Ontario Service Centre actively demonstrates commitment to presenting and preserving Canadian cultural resources by supporting this archaeological collection evaluation project. Since project commencement in 1992 over half the collections from Ontario National Parks, National Historic Sites, and Heritage Canals have been addressed. Buried for decades in archaeology storage, these resources are being rediscovered, preserved, and made accessible for presentation venues. Benefits are reaped in enhanced application of heritage artifacts for on-site displays and edu-kits, in use as prototypes for sales items and to embellish furnishing plans and heritage presentation programs.

Site collections and associated excavation records are amalgamated and placed in stable storage conditions at the resource centre in Cornwall. Each site assemblage is analysed and inventoried into a common database. Subsequent assemblage evaluations establish the resource value of artifacts. Based on criteria outlined in the Parks Canada, Cultural Resource Management (CRM) Policy (1994), artifacts are evaluated as: "level I" resources having national historic significance; "level II" resources having historic value; or "other" resources not managed under the CRM Policy. Level I artifacts have national historic significance by virtue of an association with the commemorative intent of a site. Sites with national historic significance have been recommended by the Historic Sites and Monuments Board of Canada and are designated by the Minister.

Level II historic value is assigned to artifacts associated with other factors or periods in the evolution of a national historic site or to historical/cultural eras at sites not designated by the board. Level II historic value can be assigned in consideration of such factors as regional or local association or to provincial, territorial or municipal designations. Resources not meeting criteria established for level I or level II are considered "other" and are managed under more appropriate processes and policies than the CRM Policy (Parks Canada 1993).

In archaeological collections evaluation, "other" is generally applied to modern artifacts, totally degenerated material, redundant construction related items, and samples or artifacts recovered from redeposited fills or disturbed layers that cannot be firmly associated with initial users either through cross-mending or by cultural com-

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patibility. This material is inventoried and records are maintained. It may be sampled and deaccessioned from the collection or used in hands-on presentation venues. Determination of resource value guides appropriate use or disposition of artifacts, consequently, informed consideration of the historical, archaeological, and material culture contexts is essential in assemblage evaluations.

Project researchers work in consultation with site managers and presentation staff, the site archaeologist and historian. Meetings provide opportunities to review significant findings, acknowledge areas where future research is required, determine appropriate disposition of "other" material and affirm the report format to meet site needs. The assemblage evaluation report discusses the historic value of typical and significant artifacts associated with various phases of site occupation. Artifacts designated as having national historic significance are highlighted and discussed relative to commemorative themes established for the site.

While assemblage evaluation is ongoing, a 'site resource collection' is selected characterizing the material realm for various phases of the site history. The resource collection features representative artifacts and items with high exhibit potential organized into groups appropriate to the site assemblage. With assistance from collections management and conservation staff, resource collection artifacts are preserved and laid out in trays for easy reference and accessibility. The collections are available for use by external clients and interested researchers. During 1998, the project was focussed on assemblages from Pukaskwa National Park, Jones Falls lockstation on the Rideau Canal, Healey Falls on the Trent Severn Waterway, Point Pelee National Park and upon Fort George Commons at Niagara National Historic Parks.

PUKASKWA NATIONAL PARK

A report outlining the cultural history of Pukaskwa National Park was completed by Helen Dunlop (1998). The study traces phases of human occupation from the Palaeo-Indian Period to the 20th century within the broader context of the Lake Superior Basin. Changes in the Pukaskwa cultural landscape are discussed within the framework of human interaction with the natural environment. To date 87 archaeological sites have been documented within the park boundaries. Seventy-one are petroform sites (Pukaskwa Pits) with no associated artifacts. A brief summary of theories regarding purported use and cultural affiliation of the pits is presented.

The material culture evaluation focuses upon 16 sites within the park where artifacts were encountered. Site assemblages include material associated with Terminal Woodland encampments, early European contact sites (Figure 1), trapping sites, and early 20th century logging and fishing industries. Artifact selection for the site resource collection reflects each of these phases. The report is currently used as a guide training manual at the park and a number of artifacts from the resource collection have been reproduced for the human history section of the Pukaskwa edu-kit.

JONES FALLS, RIDEAU CANAL

Work was initiated on the Jones Falls assemblage collected during 1978 to 1985 excavations of the lockstation blacksmith shop, guardhouse and lockmaster's house (Ritchie 1982, Stark 1982). These structures were all built during the 1826 to 1855-era of military operation of the Rideau Canal and are of national historic significance as outlined in the Rideau Canal National Historic Site Commemorative Integrity Statement (Parks Canada 1997). Collection inventory is complete and a resource collection and evaluation report differentiating level I material from the subsequent late 19th and early 20th century level II accumulations are scheduled for next year.

HEALEY FALLS, TRENT SEVERN WATERWAY

Assisted by Kyla Spence, Helen Dunlop completed the analysis of Healey Falls native ceramics collected between 1975 and 1996. The resource collection includes an Early Woodland vessel (Vinette I), more than twenty Middle Woodland vessels

(Point Peninsula) and two Late Woodland vessels (probably Pickering). The detailed analysis of native ceramics will be included in an overall archaeology site report due in 1999.

POINT PELEE NATIONAL PARK

Point Pelee, the most southernly point in Ontario has numerous sites including Late Woodland encampments (all phases of the Western Basin Tradition), 19th and 20th century homesteads, and a turn of the 20th century life saving station and associated coxswains' dwelling. The Pelee assemblages derive from survey work and test pitting conducted over the last two decades. Material excavated in the early 1980s was inventoried by Helen Dunlop this year. Her assemblage evaluation report encompassing all site assemblages, is scheduled for completion in 1999. Research on the Pelee assemblage will entail a review of associated collections held at other institutions. The Museum of Anthropology in the University of Michigan at Ann Arbor has Pelee material from 1930s excavations. The Canadian Museum of Civilization retains a collection from Tom Lee's investigations between 1949 and 1952 as well as material recovered by David Keenlyside (1977) under contract to Parks Canada in 1968 and 1969. The Keenlyside material will be amalgamated with the Pelee collections at Cornwall in the near future.

FORT GEORGE COMMONS, NIAGARA NATIONAL HISTORIC PARKS

Fort George Commons is a large military reserve established by the British in the late 18th century. Situated west of the fort, the Commons was the site of a complex of five buildings associated with the Indian Department. The complex was burnt to the ground during the War of 1812 and rebuilt on a different alignment in 1815. By 1822 the Indian Council House had been converted to a surgeon's quarters and military hospital serving the Niagara garrison until the early 1880s (Figure 2). Circa 1815, quarters were built nearby for the Commandant which may have incorporated one of the Indian Department structures. The quarters were occupied by civilian tenants when they were destroyed by fire in the late 1850s.

Initial testing to delineate the Indian Council House/garrison hospital was conducted in 1969 by Jason Henderson (1969) followed by complete excavation of the Commandant's Quarters the following year (Henderson 1973). The resultant collection of more than 170 boxes is now more than half inventoried with all material from the Indian Council House/garrison hospital recorded. Peter Sattelberger began evaluation of this component of the site based on the following historical phases:

1. Prehistoric and early historic land uses to ca. 1798
2. 1st Indian Council House ca. 1798-1813
3. 2nd Indian Council House 1815 - 1822
4. Garrison hospital and surgeon's quarters 1822 - 1882
5. Butler's Barracks and Camp Niagara military training ground and inclusion in Niagara National Historic Sites 1882 - present

Preliminary evaluation of the material culture affirms the building remains found by Henderson in 1969 relate to the post War of 1812 Indian Department/hospital structures rather than the earlier Indian Council House. By far the bulk of the assemblage (consisting of bottle glass and enormous amounts of scrap metal) represents late 19th and early 20th century post demolition fills. The area appears to have been levelled prior to World War I to improve the training grounds for regulars and militia stationed at Camp Niagara. Completion of the inventory of the Commandant's Quarters assemblage is anticipated in 1999 with a final report incorporating the entire Commons assemblage anticipated early in 2000.

SUPPORT TO THE ONGOING FIELD ARCHAEOLOGY PROGRAM

Material culture research staff provided assistance and expertise to the Ontario Service Centre archaeology program in processing, inventory and analysis. Sites where assistance was provided include Fort Malden, Fort Mississauga, Point Pelee,

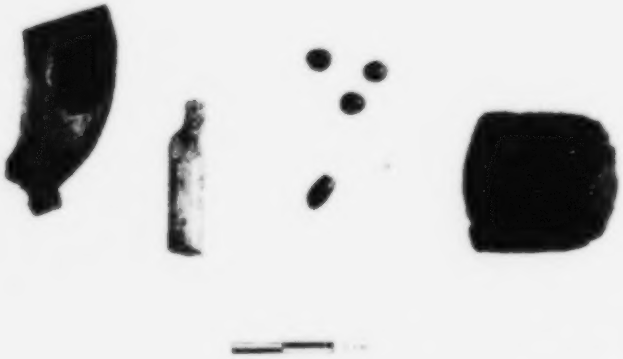

FIGURE 1. Pukaskwa, Oiseau Creek site. Euro-Canadian artifacts including a pipe bowl and stem, glass beads, lead shot and gun flint. Photo by G. Vandervlugt. (RAO-2878T)

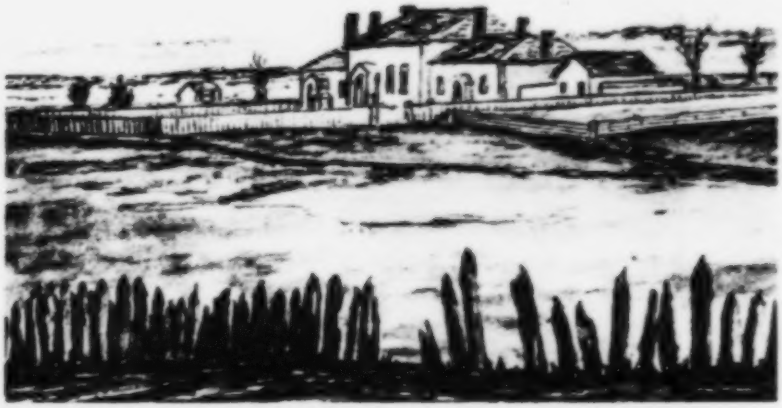

FIGURE 2. Fort George Commons showing the 1815 Indian Council House converted to a Garrison Hospital and Surgeon's Quarters. Watercolour by J.W. Cotton based on a sketch by F.H. Granger 1864. (PA C-31207.)

the Entrance Valley, Navy Island, Laurier House, Murney Tower and Point Pelee. These projects are recorded under relevant Parks Canada headings in this volume. Assistance was also provided to presentation programming for guide training and display planning at Fort Wellington and a temporary display at Murney Tower.

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CONSULTING ACTIVITIES

HERITAGE QUEST INC. 1998 CONSULTING ACTIVITIES

HUGH J. DAECHSEL

Heritage Quest Inc., incorporated in 1992, undertook 15 archaeological investigations in the 1998 field season. These included Stage 1 assessments of proposed changes to Highway 15 between Portland and Smiths Falls, for the Lindsay Ops Landfill site in Victoria County, Castle Frank overpass in Kanata and in conjunction with Mount McGovern Co. Ltd. the Federal Annex Building site. Stage 2 investigations were undertaken for the Cumberland Transitway and Blackburn Hamlet Bypass and the Champlain Bridge Crossing both in Ottawa. A Stage 2/3 assessment was undertaken in conjunction with Mount McGovern Co. Ltd. of the Federal Annex Building site on Parliament Hill and Stage 4 field work completed on the Church site (BaGf-20) along Hwy 33 west of Bath. Monitoring work included installation of a gas line at Bethune Thompson (BgFp-39), stabilization of a portico by the Senate Entrance of the Centre Block (BiFw-12), foundation study of Christ Church in Deseronto, and the recovery of burials from the Peterborough Armoury. An archaeological master plan was developed for Canadian Forces Base (CFB) Petawawa as well as a geophysical investigation of the original graveyard associated with the first Christ Church in Deseronto.

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FEDERAL ANNEX BUILDING SITE (BiFw-40/41)

Heritage Quest Inc. in conjunction with Mount McGovern Co. Ltd. undertook a Stage 2/3 archaeological investigation of areas associated with the Federal Court Annex Building located on West Parliament Hill, immediately east of the Supreme Court Building of Canada. The focus of the investigation, under the direction of Brenda Kennett, was to determine the nature and extent of the archaeological resources in the area in anticipation of changes to be made to the Federal Court Annex property.

This area was part of the original Upper Bytown area surveyed by Lt. Col. John By in 1826. These town lots were leased by ordnance to officers and farmers through to the mid nineteenth century at which time they were sold to private land holders. The area examined in this study lay at the corner of Kent and Vittoria Streets, and included a portion of the northern extension of Kent and the eastern extension of Vittoria (see Figure 1). A total of 531 square meters were exposed in a series of trenches mechanically excavated. The location of the opened units was predetermined by earlier investigations on the location of historic structures on the property (Kennet 1999a).

Three nineteenth century homes were identified in the north parking lot area (BiFw-40). These were identified as the Holland House 47 Vittoria St. (1861 – 1928), Mary Blyth's house 57 Vittoria Street (1861 – 1916) and Robert Blyth's home (1850 – 1924) 59 Vittoria Street. Over 13,000 artifacts were recovered from this area providing an exceptional assemblage of residential material reflecting the late nineteenth and early twentieth century use of the area. Excavations in the southeast parking lot (BiFw-41) revealed three stone wall segments which appear to be garden walls associated with the historic Gilmour/Manuel estate located at 34 Vittoria Street. Over 3,700 artifacts, reflecting mid nineteenth century activities were recovered from this area.

CHURCH SITE (BAGF-20)

Following recommendations from a stage 3 assessment a stage 4 investigation of the Church Site, located on the north side of Highway 33 in Concession 1, Lot 19 was completed in May of 1998 under the direction of Heather Henderson. A total of 63 m2 was hand excavated with an additional area of approximately 260 m2 stripped to subsoil by the gradall. Of this portion about 25 m2 was cleared by hand exposing the porch sill and house foundation of an 1830's house to which much of the historic material recovered in the eastern portion of the site related. The site provided no structural features that could be related to the late 18th or early 19th century despite.

The presence of reasonable numbers of creamware and a mid to late 18th century bottle fragment clearly indicated occupation of the area at that time. The site also produced some aboriginal Late Woodland ceramics indicating use of this site at about 700 to 800 B.P.

PETERBOROUGH ARMOURY (BBGN-18)

Heritage Quest Inc. was asked, in the fall of 1998, to monitor, record and remove burials discovered during foundation repair work at the Peterborough Armoury. This work was required once it became evident that human remains were being disturbed in the excavation of the workers trenches. Excavation was limited to a section of the grounds extending 25 meters along a north south axis and up to 3.5 meters from the east facade of the building. Portions of nine burials were excavated with upwards of 20 individuals identified as having been disturbed by trenching activity. Dr. Herman Helmuth, Trent University, completed the analysis of the recovered material. All of the recovered individuals were adults ranging between 20 and 60 years in age with a majority of these males. Coffin hardware was limited although coffin stains were clearly visible in the subsoil (Earl 1999).

These burials were part of the Protestant burial ground the use of which dated between 1825 and 1854. This burial area, established early in the development of Peterborough, was closed by 1854, having been replaced by the Little Lake Cemetery. The area remained open space through the later half of the nineteenth century with a Drill shed situated on the property by 1875. The Armoury was constructed in 1907.

CFB PETAWAWA

Heritage Quest Inc. was retained by CFB Petawawa to provide an archaeological inventory of existing sites and produce management guidelines for archaeological resources on the base, situated between the Petawawa/Baron River system, Algonquin Park and the west shore of the Ottawa River. This study, restricted to the training area encompassing 19,650 hectares, resulted from recommendations made in an earlier overview of the base provided in an Environmental Baseline study. Under the direction of Brenda Kennett, this assessment included revisiting sites on the base identified in earlier surveys by Barry Mitchell and Clyde Kennedy as well as a sampling of additional locations with the available time. Areas examined included Montgomery Lake, north shore of Lac du Bois Dur, mouth of Antler Creek and a portion of the Chalk Bay Shoreline (Kennett 1999: 2). The field investigation included testing of four known sites and the identification of eight additional locations. Eight of these sites featured precontact components including 5 Middle Woodland, three Archaic and four Late Woodland. Four of the identified sites were solely EuroCanadian.

Archaeological resource management guidelines including development of an archaeological potential map were included in this study. In conjunction with GeoSolutions Consulting Inc.

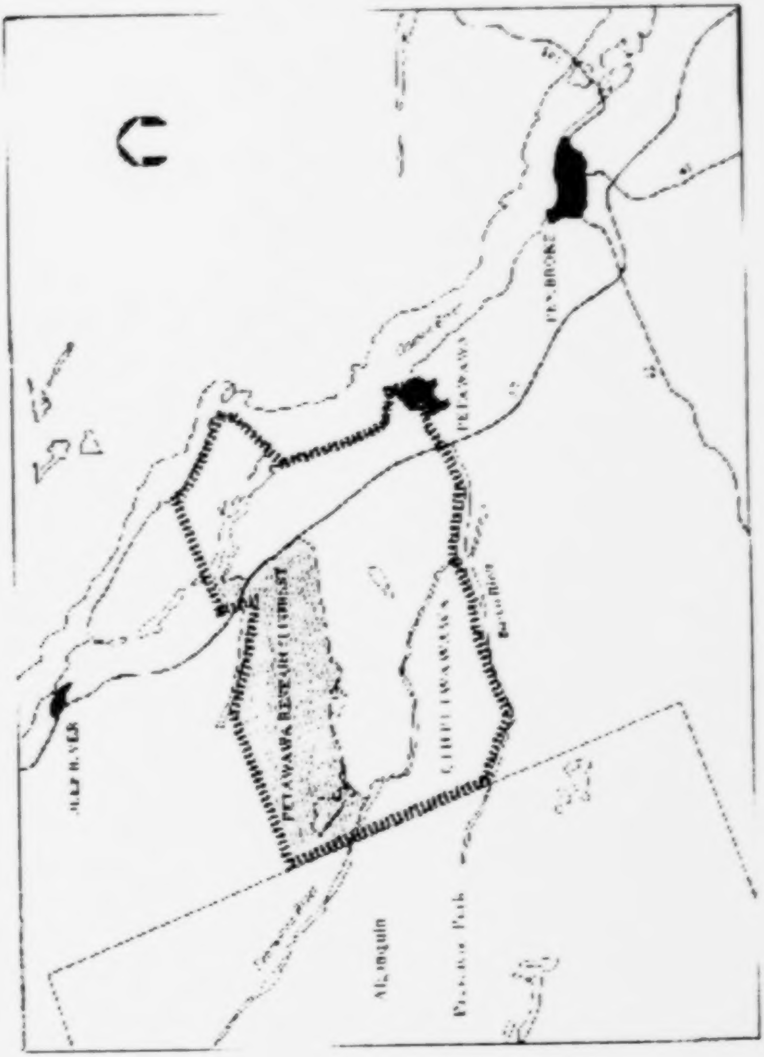
CHALK RIVER
PETAWAWA RESEARCH FOREST
PETAWAWA
PEMBROKE
Barron River
Algonquin
Provincial Park

FIGURE 1. Location of Canadian Forces Base Petawawa

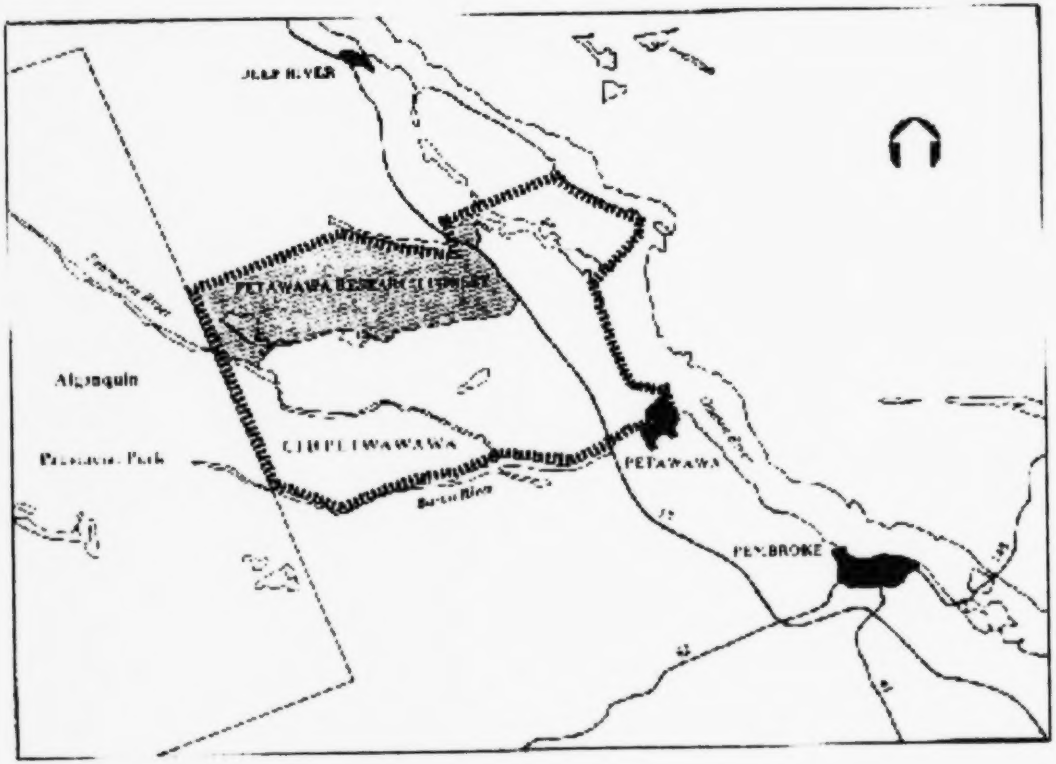
DEEP RIVER
PETAWAWA RESEARCH FOREST
Algonquin
Provincial Park
CFB PETAWAWA
PETAWAWA
PEMBROKE
17
41

FIGURE 1. Location of Canadian Forces Base Petawawa

a GIS based archaeological potential map incorporating data from a number of environmental variables and some historic considerations was produced. The results of this investigation indicated that 50% of the base area for which data was available has either a high or moderate potential for archaeological resources. The management component of the investigation focussed on existing guidelines and provided a suggested protocol for dealing with identified archaeological resources.

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Kennett, Brenda

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THE MADOC QUARTZ QUARRY (BDGI-4): A TERMINAL ARCHAIC/EARLY WOODLAND PREFORM REDUCTION SITE

LAWRENCE J. JACKSON AND DONNA MORRISON

The most significant project undertaken in 1998 by Northeastern Archaeological Associates was the discovery, Stage 3 testing, and radiocarbon dating of a prehistoric quartz quarry located in the Canadian Shield near Madoc, Ontario. Under the field direction of Donna Morrison and project direction of Lawrence Jackson, a Stage 2 archaeological assessment of a proposed gravel pit expansion led to discovery of site BdGi-4, known as the Madoc Quarry (see Figure 2). Intensive surface collection of the 30 metre diameter site area, defined by a small knoll overlooking extensive swampland and beside a quartz knob outcrop, produced 323 artifacts, all on quartz - including milky white, smoky white and clear crystal gradations. Stage 3 testing of 40 square metres across the site led to recovery of some 10,400 additional artifacts, mostly debitage and 99% on quartz. Other materials include greywacke, rhyolite, and chert. Four subsoil hearths/pits were exposed by test units. The site structure is comparable to that of many prehistoric campsites with the significant difference that there is an enormous volume of associated debitage. Weathered quartz chunks and nodules from the nearby bedrock outcrop which rises 10 metres above the surrounding countryside appear to have been carried to the site area and reduced "in situ" to transportable preforms.

The single largest recognizable artifact class is the quartz preform with a majority of these on a beautifully clear quartz which suggests aesthetic considerations.

Recovered tools indicated multiple stages of preform manufacture and discarded hammer and anvil stones strewn across the site surface. Artifact distributions suggest the presence of a number of discrete reduction events and a relatively limited time frame for occupation of the site. There were no cultural diagnostics apart from a single quartz projectile point tip. Site age and significance is clearly defined by the radiocarbon dating of two subsoil hearths, each packed with artifacts resulting from reduction events (see Table 1 for feature contents).

Feature 1, a deep basin-shaped hearth or pit (see Figure 3), contained 719 quartz pieces and three chert flakes, as well as 43.0 grams of charcoal from seven 5 centimetres feature levels (total depth of 35 centimetres). A radiocarbon date of 2890 +- 70 B.P., corrected to a dendro-calibration intercept age of 1030 B.C. was obtained on a 10 gram charcoal sample analysis (Beta 118006). Feature 4, a very deep, basin-shaped hearth or pit has a total depth of 45 centimetres (nine 5 centimetres levels). Artifacts in Feature 4 included 313 pieces of quartz reduction debris and two gravers. The largest and complete graver is made on

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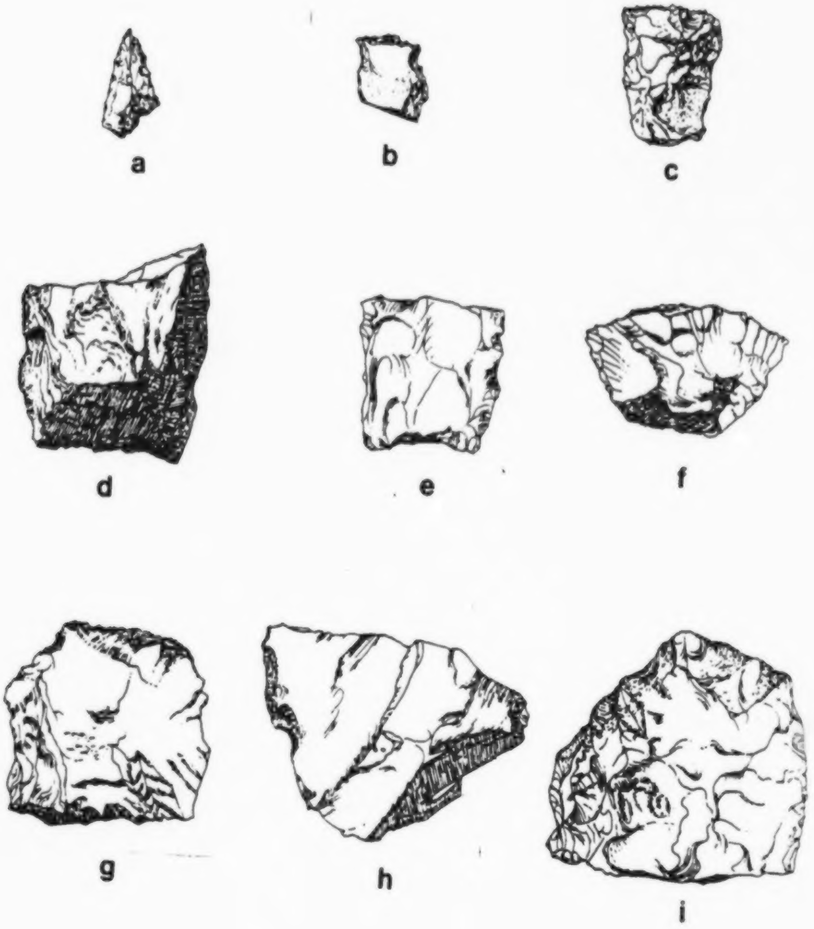

FIGURE 1. Madoc Quartz Quarry artifacts
a. white quartz point tip
b. Onondaga chert bilateral graver, Feature 4
c. Onondaga chert end scraper
d. white quartz preform base
e. clear quartz preform base
f. white quartz preform base
g-i. large white and smokey white quartz preform sections

FIGURE 2. View to east of quartz bedrock outcrop adjacent to site.

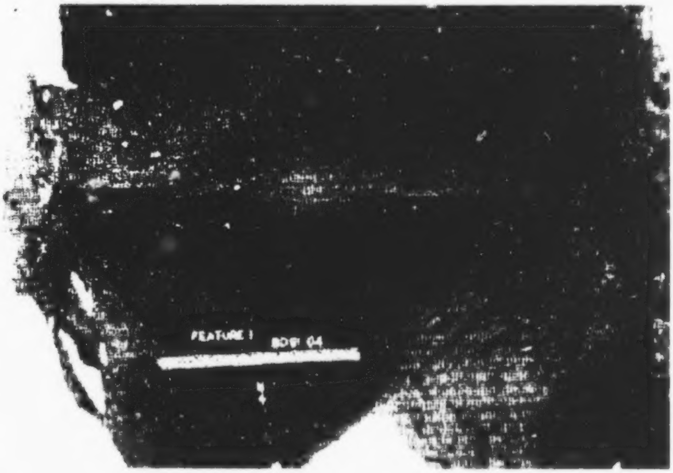

FIGURE 3. Cross-section view of Feature 1 during excavation.

TABLE 1 MADOC QUARRY SITE
FEATURE CONTENTS (CM, KG, AND G)

	Level (Cm)	Fill (Kg)	4.0 mm #	Quartz Flakes (G)	Charcoal (G)
Feature 1	0-5	26.8	114	153.32	13.24
	5-10	32.2	217	350.85	7.09
	10-15	27.5	164	201.50	2.61
	15-20	22.8	501	35.61	6.05 + (5.14 North for combined C14)
	20-25	19.0	881	06.06	7.95 + (7.71 North for combined C14)
	25-30	15.6	62	73.92	6.06
	30-35	12.0	27	52.46	0.00
Totals		155.9	722	1073.7	243.00
Feature 2 Surface			9	16.18	
Feature 2A	0-5	12.0	108	61.75	0.08
	5-10	8.0	71	39.10	0.00
	10-15	6.0	84	88.93	0.00
Totals		26.0	263	189.78	0.08
Feature 2B	0-5	11.0	170	223.09	0.12
	5-10	7.0	112	142.29	0.10
	10-15	6.5	25	18.15	0.02
Totals		24.5	307	383.53	0.24
Feature 3	0-5	6.2	0	0.00	0.38
	5-10	17.0	1	0.38	0.04
Totals		23.2	1	0.38	0.42
Feature 4	0-5	23.0	82	50.99	12.17
	5-10	17.8	51	46.96	11.43
	10-15	9.6	24	16.20	9.74
	15-20	15.7	57	18.37*	18.58+(10.70 East for C14)
	20-25	10.8	22	15.69	3.15
	25-30	10.9	29	8.81	3.22
	30-35	7.4	29	9.93	6.35
	35-40	6.1	8	2.35	2.60
	40-45	3.1	13	6.30	1.44
Totals		104.4	315	185.60	68.68

*includes two gravers, one from East Half at 1.49 g and one from West Half at 0.96 g greenish-gray Onondaga chert with two opposing distal end corner spurs (see Figure 1). 69 grams of wood charcoal was recovered from Feature 4. A 10.7 gram sample from the 15 to 20 centimetres level gave a date of 3424 +-65 B.P. (BGS-2085), corrected to a dendro-calibration intercept age of 1715 B.C. The dates for Features 1 and 4 are within each other's 2 sigma range and statistically likely to be estimations of the same event.

Expanded Stage 3 test excavation around Features 1 and 4 produced a final total of 2,417 artifacts or 25.3% of total site artifacts. Since each feature was truncated by ploughing, it is quite clear that reduction activity was hearth-focused and that original "feature event units" (Jackson 1998) at individual features produced up to 1,700 pieces of debitage each. Our educated guess is that upwards of 50% of the Madoc assemblage is actually feature associated - either with tool making or dumping events. With an estimated 100 kg of broken quartz reduction material on this small site, dumping into hearths would have helped keep the area clear for walking. There were no faunal contents in any of the hearths excavated.

Radiocarbon dates for the Madoc Quarry site place it clearly in the Terminal Archaic, most likely at the time of the Small Point Archaic, a series of lithic complexes using small side or corner-notched point forms. The Feature 1 date at Madoc is very close to an earliest hearth/pit date of 2890 +- 70 B.P. (Uncorrected) at the Dawson Creek site on Rice Lake for Vinette 1 pottery. The possibility of early ceramics at Madoc is also raised by its Terminal Archaic dating and provides a strong incentive to return for Stage 4 investigations.

The Madoc quartz quarry and preform reduction site has extremely focused hearth activity and argues against traditional views of quarries as diffuse and highly jumbled areas of multi-component archaeological deposits. Settlement pattern is definitely present at the site, features are clearly associated with at least some quarries, and botanical preservation (wood charcoal, at least) can be quite good.

We are interested in testing some of our long-standing assumptions about quarries in Ontario against the data at Madoc and similarly arranged quarries along Onondaga chert bedrock outcrops near the mouth of the Grand River in southwestern Ontario. The use of clear crystal quartz preforms, as documented at the Madoc Quarry site, in southeastern Ontario begs the question of why these artifacts and their resultant bifaces, projectile points, and other tools are so rarely found or reported in this part of the province.

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MAYER HERITAGE CONSULTANTS INC. CONTINUING STUDY SERIES: A LOOK AT MITIGATION AND HERITAGE INVESTIGATIONS CONJOINED BY PURPOSE OR PROJECT

ROBERT G. MAYER AND J. TREVOR HAWKINS

Mayer Heritage Consultants Inc. (MHCI) is a London-based Canadian corporation with its head office in Byron Heritage House in the historic "downtown area" of Byron in the west end of London. Representatives and facilities throughout Ontario and in Quebec permit rapid response to enquiries for service. MHCI offers full-range archaeology and heritage services in a number of broadly defined areas. This review treats a series of continuing studies having to do primarily with 1) residential developments, 2) utilities and infrastructure, and 3) the Blue Water Bridge Authority facilities and structures in Point Edward. Some of the investigations fall under more than one of these arbitrarily chosen classifications and involve Aboriginal First Nation project consulting, monitoring activities, identification of burials, and cemetery delineation and conservation.

RESIDENTIAL DEVELOPMENTS

Residential developments once again played a significant role in the workload of archaeology, mirroring the economic recovery. MHCI conducted a series of studies made particularly interesting by their unique circumstances. The first of these is a Stages 1 & 2 investigation conducted by Paul O'Neal concerning the proposed development of residential accommodation on the grounds of Alma College, once an internationally known residential school for girls, in St. Thomas, Ontario (MHCI 1998a). This school, marked by a commemorative plaque, consists of a 19th century stone building of Victorian mien, with other structures set on landscaped grounds bounded on two sides by an early municipally owned railroad and a ravine. The proposed development follows the concept of urban infilling, that is, the utilization of space required for the original design and function of the property can be reassigned without distorting its architectural and landscaping values. This project involves the construction of an underground parking facility with apartment complexes above, all located to the rear of the main building (which is to be retained) and extending close to the property boundaries.

Because of the extensive landscaping of the whole of the grounds, including manicured lawns, tennis courts and on-grade parking lots, hand shovel test pitting of undisturbed areas was conducted at five and ten metre intervals. Eleven locations were found (Figure - Site Concept from the report) with archaeological resources, two Aboriginal, eight Euro-Canadian, and one multi/component Aboriginal/Euro-Canadian. A Stage 3 investigation and possibly a Stage 4 mitigative excavation were recommended for the AeHh-102 site as it afforded sufficient quantities of Onondaga chert chipping detritus to warrant further investigation.

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The second study concerns what at one time was a major component of the early hamlet of Dunbarton, now in the Town of Pickering, Regional Municipality of Durham. A Stages 1 to 3 assessment conducted by Leslie Currie (MHCI, 1998b, 1998c) was conducted on the three-acre land division on the property of William Dunbar who was awarded the original crown grant of 100 acres in 1840. A residence, constructed circa 1835, was demolished circa 1902 and replaced by the existing residence. By 1851, the property also had a blacksmith and wheelwright shop. William Dunbar and his family played a prominent role in shaping the economic, judicial, and religious communities of Pickering. William laid out the town of Dunbarton on his property, became a Justice of the Peace, and served as an Elder in the United Presbyterian Church. These positions of responsibility suggest that William probably served as a "patron" in the community, providing mortgages and small loans in exchange for social and political allegiances. A post office, named for William Dunbar was established in 1852. In 1923, for some unstated reason, the post office name was changed to Dumbarton. The blacksmith and iron-working business remained an active family operation until 1977.

The property, having manicured lawns and dense brush cover, was subjected to the standard hand-shovel test pit survey method at five-metre intervals. Twenty-one positive test pits at three locations contained 300 Euro-Canadian archaeological resources, notably, a midden yielding domestic refuse, and two test pits yielding coal, ash, nails and miscellaneous metal objects consistent with the blacksmith and wheelwright operations. Because these resources all originate from a continuous 19th century Euro-Canadian family occupation, they were combined under a single site registration number — AkGs-20. Although the proposed construction would have no impact on one of the locations, a midden containing domestic refuse not requiring additional work at this time, all three sites were subjected to Stage 3 investigations.

The artifacts recovered during the Stage 3 investigations appear to have a similar date range of manufacture (circa 1830 to post 1891). The presence of white ironstone in the deepest layers of one of the locations suggests that it is probably post 1840. Makers' marks on some of the ceramics include "England" and "Germany", indicating that they are post 1891 when the McKinley Tariff Act required goods imported into the United States of America be marked with the country of origin. Of note in the artifact assemblage is the presence of an unusual red clay smoking pipe with a moulded bowl and incised with the legend "R.BANNERMAN/MONTREAL" on the stem.(Figure 6 from the report). This specimen is not typical of the pipes usually found on 19th century sites. Pipes are usually manufactured from white ball clay. The Bannerman pipe may have been made from Dorset clay that ranges in colour from ivory to buff to red. Because additional work would not contribute significantly to the information gleaned from this site, the Ontario Ministry of Citizenship, Culture and Recreation concurred with the recommendation that Stage 4 mitigative measures were not warranted.

Yet another study presenting unusual circumstances was the Stages 1 to 3 archaeological assessment by Scarlett Janusas of an active, producing vineyard (MHCI 1999). The Woodland Heights Subdivision area consisted of 31 acres in the City of St. Catharines (formerly Louth Township), in the Regional Municipality of Niagara. A standard pedestrian survey was conducted at a three-metre interval in the area of the standing grape vines, and a five-metre interval for other areas free of obstruction. Two locations were found, each being a surface scatter of 19th century domestic artifacts. One of the locations also contained an isolated findspot, yielding a single piece of Onondaga chert chipping detritus, i.e. a secondary shatter flake.

The land title from the original Crown Patent grant up to circa 1875 was examined by historical researcher, Sean Gouglas, along with tax assessment rolls and census records to establish a preliminary framework for evaluating the significance and context for the cultural material and features found on the site. It was determined that the Crown Patent grant of land was made to Cap-

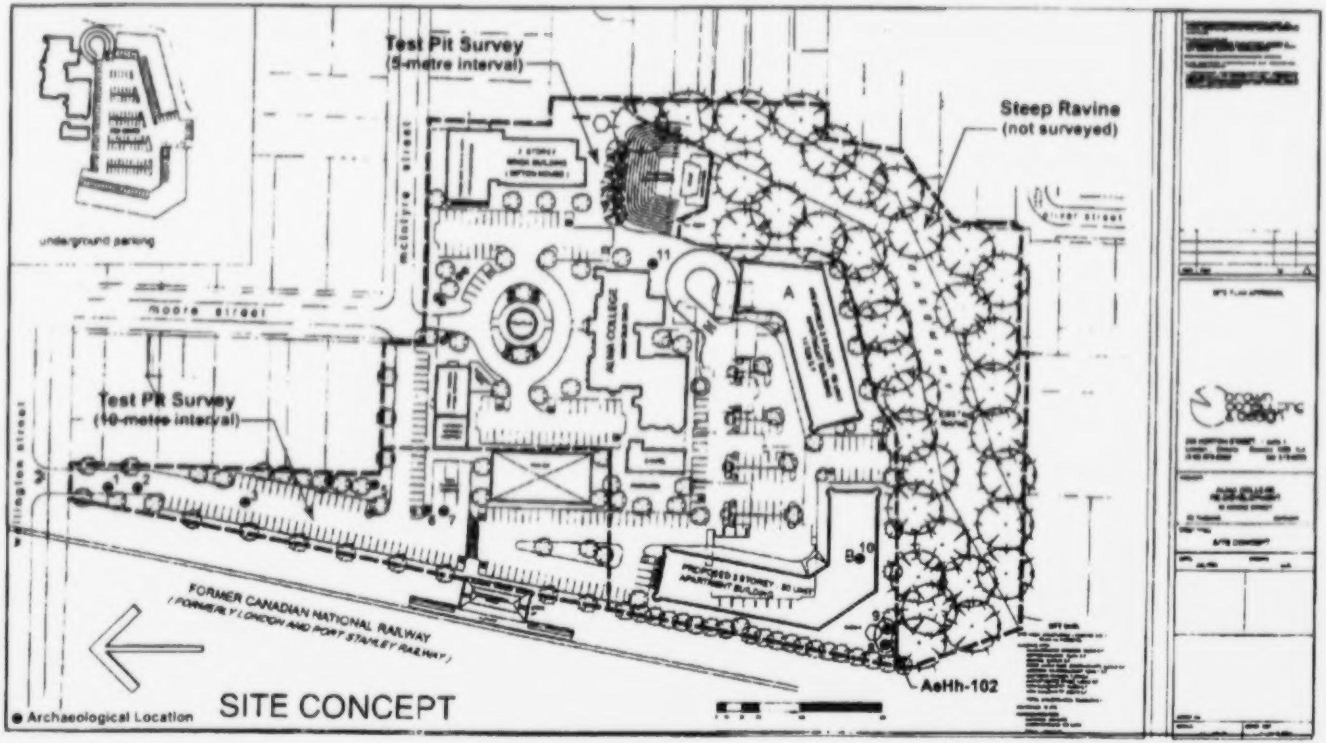
Test Pit Survey
(5-metre interval)
Steep Ravine
(not surveyed)
underground parking
moore street
mcintyre street
wellington street
Test Pit Survey
(10-metre interval)
ALMA COLLEGE
A
B
1
2
3
6
7
9
10
11
AeHh-102
FORMER CANADIAN NATIONAL RAILWAY
(FORMERLY LONDON AND PORT STANLEY RAILWAY)
● Archaeological Location
SITE CONCEPT

FIGURE 1. Alma College, City of St. Thomas. Stage 2 General Survey Coverage and Results.

tain Peter Ten Broeck, one of the original 17 settlers in Louth Township. He was a significant historic individual during the late 18th and early 19th centuries, and he made significant contributions to the development and history of Upper Canada, having served with Lt. Col. John Butler. He sat on the Land Board of Lincoln County when it was established in 1792.

Because one of the locations found during the Stage 2 general survey exhibited information potential (AhGt-11), a Stage 3 investigation was conducted here. Ten test units, each one-metre square, were hand excavated by shovel at strategic locations covering the extent of the surface artifact distribution. Grape vine roots were prevalent but not an impediment. All of the test units yielded artifacts, with two having cultural features. One contained a cluster of rocks, with no other cultural material or evidence of heat alteration of the rocks or soil. The second, a privy, contained a large quantity of cultural material consisting of ceramics, coloured glass, windowpane glass, tableware glass, glass containers, bottles and liners, and metal items. The number of metal items recovered was small, and this being a domestic site, it is curious that so few metal architectural hardware items were recovered. The artifact analysis indicates that this site has a date range of occupation from circa 1840 to 1918. Because it does not correspond to the date range of Captain Ten Broeck's occupation, it is presumed that his homestead is located outside the 31-acre limit of this investigation, elsewhere on his original 100-acre property.

A Stages 1 to 3 assessment was conducted by Jacquie Fisher on the proposed Garden Avenue subdivision located in the City of Brantford (formerly Township of Brantford), County of Brant, Ontario (MHCI 1998d, 1998e). The study area consists of approximately 115 acres of agricultural land, bounded on three sides by Garden Avenue, Highway 403 and the Canadian National Railway. Based upon the standard criteria and the background research, the property exhibited high potential for pre-contact Aboriginal and for 19th century Aboriginal and Euro-Canadian sites. Ploughed areas were surveyed using the standard pedestrian method, and unploughed areas, by test pitting. The Stage 2 general survey found 49 locations with Aboriginal artifacts and 91 locations with Euro-Canadian cultural material. Most of these locations were widely separated isolated findspots of little archaeological significance and exhibited low information potential. Eight site registration forms (AhHb-66 to 73) were submitted. No additional work was recommended for the isolated findspots. Two Aboriginal and three Euro-Canadian sites (AhHb-66 to 70) were recommended for Stage 3 investigation. Although the OMCzCR initially accepted all of the MHCI recommendations, ministerial prerogative was exercised, and the ministry subsequently required additional Stage 3 investigation.

The 507 artifacts recovered included 55 pre-contact Aboriginal artifacts (a biface, core, knife, preform, projectile point, hammerstone and 45 pieces of chipping detritus). The remainder consisted of various pieces of Euro-Canadian domestic ceramics, glass, plastic and metal objects, and faunal bone and shell. These materials exhibit little information potential by provincial standards, and it was recommended that no further investigation was required.

An earlier study on the property of the proposed Springdale Community subdivision in the City of Brampton (formerly Chinguacousy Township) in the Regional Municipality of Peel, Ontario revealed seven locations yielding archaeological materials. It was recommended that the Stone Well site (AkGw-94), a 19^{th} century Euro-Canadian homestead, warranted additional documentation, and subsequently, Scarlett Janusas and Leslie Currie conducted a Stages 3 investigation and a Stage 4 mitigative investigation. A controlled collection of surface artifacts defined the core area limits for the Stage 4 work (MHCI 1998f). Eight test units (one-metre square) were excavated through the plough zone at strategic locations within the core site to identify any contexts or sequences. Of the 19 subsurface features identified, 12 were cultural in origin. The remaining seven were rodent burrows, deep plough furrows and root burns. In addition to the known dry-laid stone well (for which the site was named), the cultural features consisted of five refuse pits, three post moulds, a structural debris deposit, a privy, a summer kitchen and the stone foundation of a structure.

Approximately 2,300 domestic Euro-Canadian artifacts were recovered from the features. Most of the artifacts were broken ceramic vessel sherds from domestic tableware along with fragments of building hardware and personal items. Although some of the creamware sherds date as early as 1760, most of the other pearlware, whiteware, blue and green edgeware, old and new palette hand painted colours, pale blue transfer patterns, mocha and yelloware sherds date between 1800 and 1835, with some porcelain specimens possible dating as late as 1900. In addition, the majority of white clay smoking pipe bowls and stems date from circa 1825 to 1840. There are excellent examples of human effigy pipes, with grinning facades and full moustaches, as well as fluted and "TD" specimens.

As determined by Sean Gouglas, the chain of title from the Crown Patent land grant to circa 1875 did not identify any owner or tenant of special local significance. Based upon the small size and limited date range represented by the artifacts, the occupation was short term and consisted of at least two structures. The main structure, presumably the residence, had a small adjunct summer kitchen along with the possible rudiments of a root cellar. The privy contained a substantial deposit of post-occupational refuse. The stone well was not excavated because of unsafe conditions. Because the Stone Well site has now been sufficiently documented, no additional mitigative measures were recommended.

UTILITIES AND INFRASTRUCTURE

The once-again rapid expansion of residential developments has placed increased demands upon roads, leisure pathways and upon aggregate resources. In the first of such studies reported here, a Stage 1 background research assessment was conducted by MHCI (1997) as part of the environmental assessment required for the land portion of a new natural gas pipeline between the Union Gas Ltd. Dawn Compressor Station in Dawn Township, County of Lambton, to Erie, Pennsylvania. This is part of the Millennium Pipeline Project that will transport natural gas from western Canada to the northeastern United States. The land portion of the study area comprised some 240 square kilometres and extends over portions of Kent, Lambton, Middlesex and Elgin Counties.

Stage 1 work involved compiling an inventory of previously identified archaeological resources within the study area, plus employing Geographic Information Systems (GIS) technology to prepare an archaeological site predictive model (in somewhat the same manner as an Archaeology Master Plan is constructed). This information was then used in the generation of alternative routes, and subsequently the assessment of the potential for impacts to known archaeological resources along each alternative route. The results of the archaeological assessment were, in the following months, incorporated into the overall evaluation tables in the Environmental and Socio-Economic Impact Assessment study as part of the route selection process.

Under the Aggregate Resources Act, a Stage 2 general survey, continuing from the earlier Stage 1 assessment, was conducted by Jacquie Fisher on the proposed area of expansion of an existing quarry in Esquesing Township in the Regional Municipality of Halton (MHCI 1998g). Virtually all of the property was deemed to be of moderate or high potential for the discovery of precontact Aboriginal sites. The property consisted of approximately 12 hectares of grassed or cultivated fields and laneways leading to a barn and residential trailer. The standard pedestrian survey on the ploughed portion and hand-shovel test pit method on the pasture areas were conducted at intervals of five to ten metres. Nine locations containing archaeological material were found, with eight of these being isolated single findspots of late 19th and 20th century Euro-Canadian cultural material. The ninth location (AjGx-91) contains the visible above-ground remains of a stone foundation possibly relating to circa 1834 or 1877 residential construction. Material from all of the sites consists of earthenware and other domestic-use sherds, pane glass, and a single non-diagnostic biface. Based upon these results, a Stage 3 investigation was recommend for only the ninth location.

The City of London, as part of its long-term continuing development of riverside walkways for leisure time use, commissioned a Stage 1 and 2 investigation to determine the likelihood of impact of construction activities on the proposed east loop of the Medway Valley Pathway (MHCI 1998h). This pathway alignment, along a tributary of the Thames River, comprises forested areas and non-cultivated fields within the Medway Creek floodplain. The Stage 2 investigation conducted by Paul O'Neal employed the hand-shovel test pit method at appropriate intervals. Previously disturbed areas include two old sewer line installations and portions of the existing well-worn pathway. Although at least 24 archaeological sites are known to exist near the study site, no resources were found.

Also for the City of London was a continuation of a previous Stage 2 general survey (MHCI, 1998i) conducted by Paul O'Neal on the Adelaide Street North road-widening project. The subsequent Stage 3 investigation (MHCI, 1998j) conducted by Peter Timmins extended the Stage 2 general survey to include a new bus lane at the Fanshawe Park Road intersection, close to a tributary of the Thames River. An Aboriginal archaeological site (AgHh-168) had been discovered earlier to exist within the right-of-way. A series of 19 one-metre square test pits was hand excavated at strategic intervals. Seven of the 19 test units contained pre-contact Aboriginal cultural material within an approximate three by eight metre area. These units contained a total of 15 pieces of chipping detritus, ten calcined bone fragments, and an incomplete Lake Erie bifurcate-base type projectile point, probably from the Early Archaic period. Except for the single specimen of Kettle Point chert all of the chipping detritus was manufactured from Onondaga chert. These findings suggest that Aboriginal people either occupied the site or conducted some special purpose activity for at least a brief period. The calcined bones suggest that a cooking hearth might be present at this site, which appears to extend beyond the right-of-way limits onto private property not the subject of this investigation. Based upon the minimal test pit recovery rates, no further work beyond the monitoring of topsoil removal was recommended.

The construction of housing in the northern Greater Toronto Area has a concomitant requirement for improved roads in the area. Jane Street, from Rutherford Road north to Teston Road in Vaughan Township, Regional Municipality of York was the subject of a Stages 1 & 2 archaeology/heritage investigation (MHCI, 1998k). Conducted by Scarlett Janusas, the archaeological survey extended along both sides of Jane Street for approximately 4.5 kilometres. Although the area was composed in part of agricultural and residential land and woodlot, most of the area had been disturbed by previous landscape modifications. Stage 1 background research indicated that there are 41 registered archaeological sites within 2,000 metres of the proposed road widening. Based upon the close proximity of these resources and the immediate proximity of a tributary of the Don River, the undisturbed areas were deemed to exhibit moderate to high potential for pre-contact Aboriginal and 19th century Aboriginal and Euro-Canadian sites.

On non-ploughed areas, the Stage 2 general survey employed the standard hand-shovel test pit method at a five-metre interval. On ploughed areas, the standard pedestrian survey was employed at intervals of one or two metres. Areas that had obviously been disturbed were spot-checked using pedestrian or test pit methods as was appropriate. Because the survey did not find any archaeological resources within the study area, additional assessment or mitigative measures were not recommended. However, two 19th century structures at the Jane Street/Teston Road intersection extending into the right-of-way are currently the subject of an ongoing assessment for the Teston Road widening project from Bathurst Street to Pine Valley Drive (MHCI 2000).

There is yet another factor requiring increased road capacity and that is the North America Free Trade Agreement (NAFTA) that has caused a resurgence of the long-haul road transportation industry across the North American continent. Those highways leading to international crossings have been particularly affected. One such highway is the Queen Elizabeth Highway, or QEW, (named in 1939 in honour of then Queen Elizabeth, now the Queen Mother), extending from Toronto to the Fort Erie/Buffalo international border crossing. Stage 1 background research and a Stage 2 general survey (MHCI l) were conducted within the QEW right-of-way immediately adjacent to the Warner Cemetery in Niagara-on-the-Lake, Regional Municipality of Niagara to determine if any archaeological resources or unmarked burials were present.

Christian Warner (1754 - 1833) was a Loyalist from Albany County, New York. He served with Butler's Rangers before settling in the Niagara region, near St. Davids about 1784, and was a leader of one of the earliest Methodist "Classes" in Ontario. A provincial plaque commemorates the Warner Burying Ground and notes that two early Methodist churches had been erected on the site. The first, a frame church, was erected in 1801 and replaced by a second church in 1870. The study area of approximately 600 square metres consisted of landscaped lawn (95%) and bushlot. The standard hand-shovel test pit method was employed at a five-metre interval over the entire study area. Five of the test pits were positive in that they contained 19th century Euro-Canadian cultural material, while the remaining test pits indicated previous disturbances. In consultation with the Ontario Ministry of Transport, a Gradall machine, under the supervision of a licensed archaeologist, removed the sod and the minimal topsoil present to the interface with the subsoil. Portions of three dry-laid stone foundation walls were exposed. The main wall extends into Warner Cemetery. The remaining walls were disturbed by previous landscape modifications, probably associated with the construction of the highway in the late 1930s and subsequent upgrading projects. No evidence of any unmarked burials was found. The Warner Meeting House site, registered as AgGs-115, is not to be impacted by the road-widening project. An appeal to any who might have concerns about the church and cemetery was published (OHS Bulletin, 1999).

BLUE WATER BRIDGE, POINT EDWARD, ONTARIO TO PORT HURON, MICHIGAN

With the ever increasing use of motor vehicles over the past sixty years, both for transporting passengers and freight, the demands placed upon the original Blue Water Bridge span became such that a second span was needed to handle the traffic flow and to allow the original span to be closed for structural maintenance and upgrading. Along with the need for the second span came the requirement for additional space for collateral bridge and international border services such as customs and immigration, livestock veterinary health inspection, truck and bus inspection, duty-free shop, bridge maintenance facilities, roadways and parking. The expanded Blue Water Bridge and collateral services have become an essential component of the NAFTA super highway communication and delivery system.

As a result of these developments and plans, a Stage 2 general survey was conducted (MHCI 1998m) on the former residential properties on the riverside of St. Clair Street, Point Edward, Ontario (Figure 15 from report). One hundred and fifty-five test pits, approximately 35 to 40 centimetres in diameter to a depth of as much as 1.6 metres, were hand-excavated at a five-metre interval. Eighty-six pits yielded artifacts. Chipping detritus (60) was the most frequent finding. Following in order were earthenware ceramics (54), glass (40), nails (28), slag (16), and butchered animal bone (10). Thirty-six other artifacts, with frequencies by type ranging from 1 to 6, were recovered.

While all of the Aboriginal artifacts were found in undisturbed cultural layers, most of the Euro-Canadian artifacts were found in fill or disturbed contexts. Because the previously registered Baines site (AfHo-4) was originally recorded as being at least 40 metres from north to south, with unknown width, and is in the immediate vicinity, the Aboriginal artifacts are considered to be part of that site.

The diagnostic artifacts were comprised of a projectile point, microblade, biface, and preform were all of Kettle Point chert, which is to be

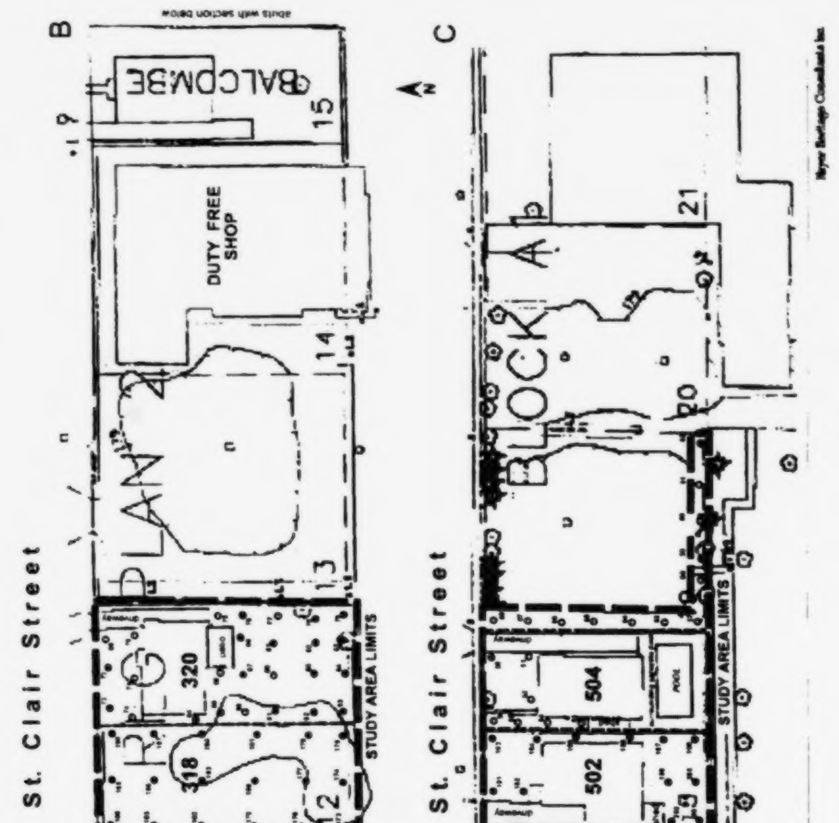
St. Clair Street
St. Clair Street
STUDY AREA LIMITS
A
B
C
N
310
312
314
316
318
320
DUTY FREE SHOP
BALCOMBE
PLAN 2
BLOCK A
498
500
502
504
POINTLEE INC
abuts with section below
abuts with section above
Test Pit - previously disturbed and/or sterile of cultural materials
Test Pit - Euro-Canadian artifacts present
Test Pit - Aboriginal artifacts present (may also have Euro-Canadian artifacts)
25 metres
Mayer Heritage Consultants Inc.

FIGURE 2. Blue Water Bridge Proposed Parking Areas, Village of Point Edward, Lambton County. Stage 2 General Survey Coverage and Test Pit Locations.

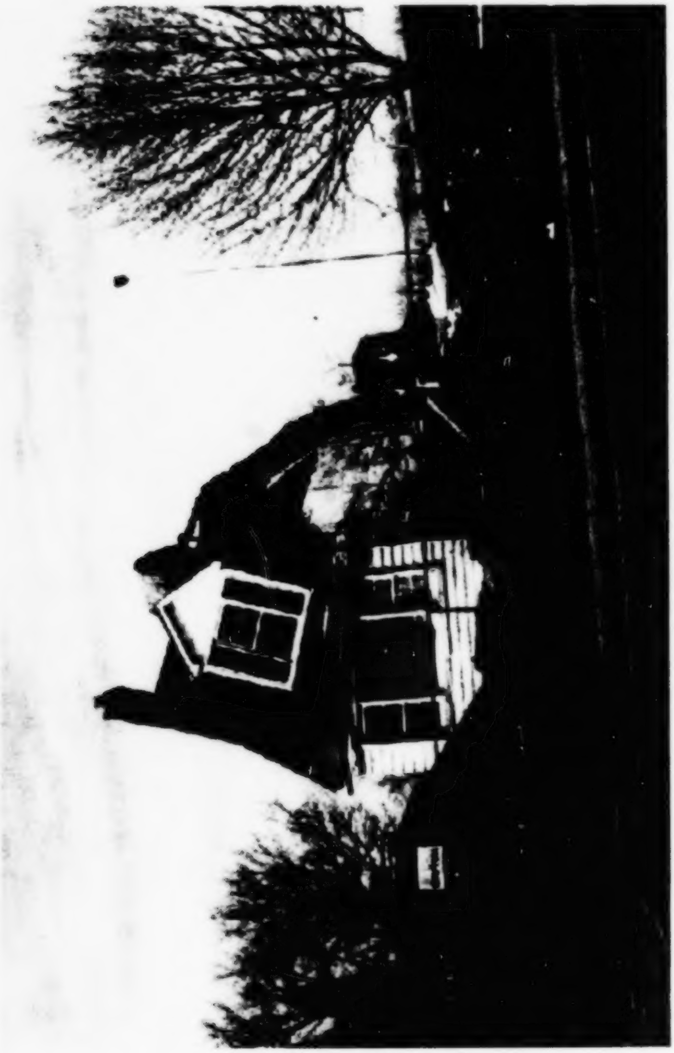

FIGURE 3. Demolition of 316 St. Clair Street, Point Edward.

found in natural outcrops some 40 kilometres northeast along the shoreline of Lake Huron, and is the chert used most widely by Middle Woodland people in this area. These diagnostic artifacts are similar to those found on the Blue Water Bridge South site less than a kilometre away. The microblade also from the Middle Woodland period, is of a Pipe Creek chert type found in Ohio. The presence of this microblade suggests involvement in an extensive exchange system or interaction sphere during Hopwellian times. It is very similar to the two found on the Blue Water Bridge South site.

Beneath almost all of the areas surveyed there is at least one occupation layer containing pre-contact Aboriginal cultural material dating to the Middle Woodland period. In the western area investigated in this study this layer seems not to have been impacted except by 20th century residential construction. In the eastern portion of the survey area, an occupation layer containing pre-contact Aboriginal cultural material was usually evident in the test pit profiles although the layer has been impacted to some extent and possibly truncated through removal of the upper part by 20th century residential construction. Because the original slope to the shoreline was levelled with the addition of fill, the top of the cultural layer ranges from 20 to 100+ centimetres below the current grade surface.

A further investigation was conducted on these same properties through the monitoring of the capping of various in-ground utility services (natural gas, water, and sanitary sewer), and of the various operations concerned with the removal and demolition of the 20th century dwellings located on nine former residential properties (MHCI 1999b). Monitoring was deemed necessary to prevent direct or collateral impact to any unmarked Aboriginal burials that might be present as well as to the substantial and significant archaeological resources known to be present beneath a layer of fill varying in depth from 20 to 60 centimetres. Because the Chippewas of Sarnia First Nation wished to organize a burial response committee that would be able to respond quickly if burials were found, the house foundations, sidewalks, driveways and concrete pads were not removed at that time.

All service lines were located prior to the capping operation. The backhoe that was used to re-excavate the original service trenches was equipped with a smaller than usual bucket (i.e., 24 inches in width), equipped with a metal bar fastened across the teeth to prevent intrusion into areas lower than necessary for capping. When there was any doubt about the area being examined, the trench was re-excavated by hand. Natural gas and telephone lines were located at a very shallow depth of 10 to 25 centimetres and so were dug by hand. This depth placed them above the known level of the archaeological resources at the front of the properties. Therefore there was no known impact on these resources. The original water and sewer trench excavations had already removed the archaeological resources in this immediate area, and no artifact or human bone was present in the fill material.

Monitoring was also conducted for the preliminary site work involving the removal of trees, curbs and steps as required for the installation of site security fencing. All of the buildings were moved or demolished before any of the foundations were removed. The method used in the demolitions was to have a large excavator pull the roof and walls of the building into the basement of the house (Photograph 14 from the report). The excavator was then used to break up the material and deposit it into a bin that was trucked to a landfill site. During the monitoring process, borehole test drilling was conducted wholly within the basement areas of the removed or demolished dwellings. Thus drilling began at a depth of two metres - well below any archaeological resources.

Although no archaeological resources were observed during the monitoring, previous assessments within the study area indicate that substantial archaeological resources from the Early to Late Woodland periods are present in at least one continuous in situ cultural layer beneath the fill material that had been added during and subsequent to house construction in the 1940s and 1950s. This cultural layer spans the study area except in the former basements where previous construction excavations have eliminated it. Utility trenches have disturbed the archaeological resources in small areas, but have not eliminated them. Other significant Aboriginal archaeological sites and burials are known to be in the immediate vicinity, and are part of a continuous series of Aboriginal occupations constituting one extensive archaeological site comprising an unknown number of overlapping seasonal campsites.

The Blue Water Bridge Burial site (AfHo-3) was found during the 1986 excavation of a trench for a Bell Canada telephone line at the rear of 316 and 318 St. Clair Street. Human skeletal remains of four adults and four immature persons were identified. Based upon the "burial form/bone condition" the remains were identified as being Aboriginal and approximately 500 to 1,000 years old. In consultation with the Chippewas of Sarnia First Nation, the remains were returned to the trench, and the Bell Canada line was moved.

Because future development might impact this site, a preliminary investigation was commissioned by the Blue Water Bridge Authority to determine the exact location and limits of the burials (MHCI 1998n). To facilitate the investigation, 20 to 25 centimetres of surface fill from a 15 by 15 metre area was mechanically removed. Thirty one-metre-square test units were hand excavated until an approximate 2 by 3 metre area containing human bones was delineated. As soon as human bone was found in a test unit, the excavation was stopped to minimize disturbance. The hand-excavated area had been previously impacted four times — once by an Aboriginal pit, twice by modern utility trenches, and once by a modern pit disturbance. The investigation exposed articulated and disarticulated bones from a late teen or young adult plus a plastic bag containing the remains returned to the Bell Canada trench in 1986. The burial was covered and back-filled to protect it pending discussions on how next to proceed.

While temporally or culturally diagnostic artifacts were not found in direct association with the remains, artifacts recovered in close proximity suggest that the remains originate from the Middle Woodland period to the Late Woodland period. Some of the lithic artifacts are of exotic cherts such as Norwood from Upper Michigan and varieties of Flint Ridge Chalcedony from Ohio. The presence of exotic cherts is characteristic of the Middle Woodland period because long distance trade networks were common at that time. In addition, there are registered archaeological sites that are possibly contemporaneous from the Middle Woodland period at various nearby points along the former shoreline of Sarnia Bay.

The delineation, disinterment and subsequent reinterment of a series of unmarked pre-contact Aboriginal burials in cooperation with the Blue Water Bridge Authority, and investigation of a Late Woodland campsite for the Chippewas of Sarnia First Nation Band Council are of particular importance. Through the efforts of its Graves Protection and Repatriation Committee (GPRC), the council determined that the archaeological resources in the Point Edward area are so important to their people that it has applied to the Historical Sites Monuments Board of Canada to have them declared to be of national significance.

The GPRC has also been inspired to give Ojibwa names to various area locations. For example, the Chippewas of Sarnia First Nation is now known as AAMJIWNAANG (place where people meet by flowing water), and the archaeological sites are GETE-NISHNAABE NBWAAKAA ZHICHGE-AKI (a place of Anishinabe Artifacts and Works of Wisdom), MDAAMINO KWE (Corn Woman Burial), ENJI-ZHA-WENDAAGWOG (Our Place of Spiritual Awakening), and ENJI-BEKAAJWANG NBIISH (Slow Moving Waters). As part of this naming process, Robert G. Mayer is honoured to have been named GETE ZHICHGAN MOONINE-NINI (man who digs up old things).

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MARSHALL ESTATES (AHGX-400): A LAMOKA NARROW POINT CAMP NEAR ANCASTER

DONNA MORRISON AND LAWRENCE JACKSON
ADVANCE ARCHAEOLOGY

The Marshall Estates site (AhGx-400) was identified in spring of 1998 as a significant Late Archaic archaeological site requiring Stage 4 block excavations before subdivision development. Located within the Town of Ancaster and just south of Highway 403, lithic activity Area A was recognized by Stage 3 testing as a Lamoka Narrow Point camp. A block excavation of 183 square metres defined the site but also identified a significant problem of "vacuuming" by looters. As shown in Figure 1, Area A (and Area A South) have a very high tool density with at least 10 classes of tools represented. Residential, rather than logistical, site occupation is strongly indicated. Although no subsoil features were preserved due to deep ploughing and the destructive impact of potato-digging machinery, a good sample of tools were recovered. There were 17 projectile point fragments, 17 bifaces, five preforms, 17 gravers, four burins, two ground stone tool fragments (including a drilled bannerstone or gorget), five bipolar cores or wedges, eight side scrapers, five core fragments, and 38 modified biface thinning flakes and flake fragments.

A strong Late Archaic occupation is represented at Marshall Estates, probably with two components: a Lamoka Narrow Point occupation circa 4500-3800 B.P. (represented by at least six point fragments) and a Small Point occupation circa 3500-2800 B.P. (see Ellis et al. 1990) represented by three point fragments. Broad points are not present for the intervening period 3800-3500 B.P. Isolated earlier diagnostics include an Early Archaic side-notched, concave base point and a reworked lanceolate base (see Jackson and Morrison 1997 on Early Archaic Ancaster). Plate 1 shows a sample of the Lamoka, Small Point and Early Archaic point fragments, as well as the drilled gorget fragment, from the site. The Smith site (AhHa-11), only 2 km north of Marshall Estates, produced evidence of a comparable Lamoka occupation during 1996 block excavations by *Advance Archaeology* (see Jackson and Morrison 1998).

One disturbing aspect of Marshall Estates and many other sites in the Ancaster and Hamilton areas is the lack of complete or even sizable artifact fragments, especially projectile points. Generally speaking, the vast majority of tool fragments from the site are quite small (under 3/4" long and more often 1/2"). During our excavations at the site, footprints were noted at the site following plough furrows - much as archaeologists do during surface collections - and excavation equipment was stolen - including a new excavation screen. Unrecorded surface collections effectively "vacuum" diagnostics from sites like Marshall Estates and can lead to incomplete and even erroneous interpretations of age and cultural

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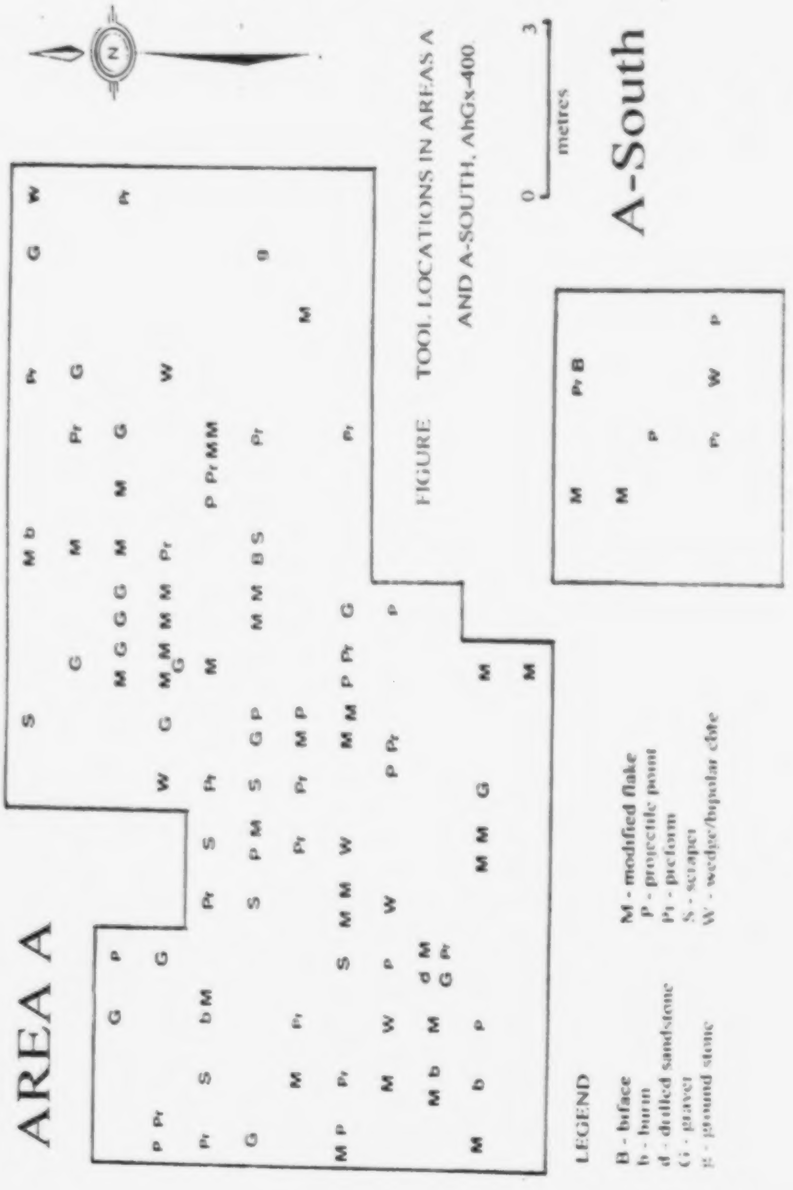
AREA A
A-South
N
FIGURE TOOL LOCATIONS IN AREAS A AND A-SOUTH, AhGx-400
0 3
metres
LEGEND
B - biface
b - burin
d - drilled sandstone
G - graver
g - ground stone
M - modified flake
P - projectile point
Pr - preform
S - scraper
W - wedge/bipolar core

FIGURE 1. Distribution of Tools at Marshall Estates Site (AhGx-400)

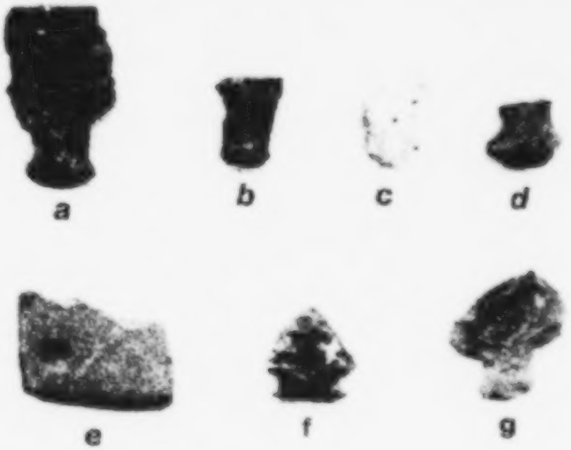

FIGURE 2.
Diagnostic Artifacts from Area A, Marshall Estates Site (AhGx-400)
a-d. Narrow Point 'Lamoka' basaes(c on Haldimand chert, others on Onondaga)
e. Drilled sandstone gorget fragment
f. Small side-notched, serrated blade point (Early Archaic), Onondaga chert
g. Stemmed Small Point (Ace of Spades), Onondaga chert

affiliation.

Unlicenced (illegal) collection of sites severely hampers the efforts of archaeologists to understand sites and urgently requires policing by the *Ministry of Citizenship, Culture and Recreation* and law enforcement agencies.

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1998 CONSULTING WORK IN ONTARIO BY PARKER ARCHAEOLOGICAL CONSULTING

L.R.BUD PARKER

In 1998 Parker Archaeological Consulting conducted four pre-development archaeological assessments. These projects were in the City of Kitchener, the County of Wellington, and the City of Mississauga. This work resulted in the registration of five new archaeological sites. Two of the projects are briefly discussed below.

ASSESSMENT OF PROPOSED AGGREGATE PIT, PUSLINCH TOWNSHIP, COUNTY OF WELLINGTON

The proposed Tikal and Associates aggregate pit, in the Township of Puslinch, County of Wellington was assessed between August and December of 1998. The study of the 31 ha property resulted in the identification of 14 archaeological finds. These included a late historic farmstead, and 13 prehistoric sites.

Nine of the prehistoric sites were isolated finds of chert debitage and/or undiagnostic tool fragments. The remaining four sites were small surface scatters of three or more artifacts and were subjected to further site testing (Stage 3 assessment). Test square excavation and surface surveys of the Tikal 1 (AiHa-39), Tikal 2 (AiHa-40), Tikal 3 (AiHa-41) and Tikal 4 (AiHa-42) resulted in low frequencies of chert debitage and tools and salvage excavations (Stage 4 mitigations) were not recommended. The only diagnostic artifact recovered was a complete Middle Archaic, side-notched, projectile point, of the Brewerton type, from AiHa-42.

GADAN SUBDIVISION, 21T-89022, CITY OF MISSISSAUGA

In October 1998, a 10 hectare property in the City of Mississauga was archaeologically assessed. This work resulted in the identification of the Morrow site (AjGw-299), a farmstead dating to approximately 1850-1880. John Morrow was granted the land patent for this land in 1849, then his heirs sold the land to William Kennedy in 1874. Kennedy owned a much larger farm a few miles way, and the Morrow farmstead was likely abandoned.

Situated beside a small tributary of Sixteen Mile Creek, the Morrow site is in the middle of a proposed park on the end of the proposed Gadan subdivision. Further archaeological studies were recommended, only if soil grading and/or alteration were to negatively impact the site.

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CONSULTING ACTIVITIES UNDERTAKEN IN 1998 BY THE LONDON MUSEUM OF ARCHAEOLOGY

ROBERT J. PEARCE

During 1998 the Museum continued work on several projects initiated in earlier years, and completed a number of reviews and Stage 1 background studies. Stage 2 and/or Stage 3 fieldwork was completed on 24 new projects, involving survey of 436 hectares and discovery or re-investigation of 56 sites.

PRESERVATION OF THE MAGNA SITE, ALGU-198

Magna International Inc. (Aurora) proposed further development of the former Frank Stonach Estate at the southeast corner of Aurora. Portions of the property (40 hectares) to be developed as the new corporate headquarters and research facilities for Magna International had previously been surveyed by the Museum in 1994, resulting in the discovery of one insignificant findspot.

In 1998, a further 129 hectares on this property, to be developed as a golf course and residential subdivision, were surveyed by the Museum. The 1998 survey resulted in the discovery of nine new sites.

Three of these sites were scatters of nineteenth to twentieth century historic material. Further fieldwork and archival research led to the determination that none of these sites were significant, and that no further fieldwork was required.

Five of the sites were insignificant findspots of prehistoric artifacts, including two notable items. The first was a single Meadowood type projectile point fragment (AlGu-200), dating to the Early Woodland period. The second was a denticulate scraper (BaGu-74) made on Collingwood chert, suggesting it dates to the Palaeo-Indian period.

The ninth site, AlGu-198, was a prehistoric lithic scatter. Three surface collections of this site at different times in the year resulted in the recovery of 45 chert flakes and a Late Archaic period projectile point. Further investigations of this site were recommended by the Museum, but the client opted instead to preserve the site. Preservation of the site was possible since it was located in an area which was to become a fairway on the proposed golf course and would not be impacted by construction. With consent and guidelines from the Ontario Ministry of Citizenship, Culture and Recreation, the site was "capped" by a non-biodegradable fabric, a layer of clean sand, a layer of clean fill, and sod. Future golfers strolling down the 14th fairway will never know they are walking over a four thousand year old archaeological site.

MITIGATION OF THE IRELAND II SITE, AIGW-94

The Museum was contracted by the Ontario Ministry of Transportation (MTO) to undertake salvage excavation of the Ireland II site in Burlington.

The site had been known to a previous landowner, and it was first documented and surface collected by Arthur Roberts in the 1970s. In

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London Ontario N6G 3M6

1980 and 1981 MTO had retained the Museum to carry out survey of the then-proposed Highway 403 corridor from Burlington to Oakville, and the Ireland II site was once again surface collected. This fieldwork resulted in the recovery of a meager collection of lithic artifacts, including an Archaic period projectile point.

MTO subsequently revised their highway plans, and the site area would have potentially been impacted by an off ramp from the new proposed Highway 407 West. MTO archaeologist Gary Warrick was almost ready to "write-off" the site, but had second thoughts and sent a crew, headed by Andrew Murray, to do one more surface collection, in 1996. That fieldwork resulted in the recovery of 156 artifacts, including for the first time a few very tiny ceramic sherds.

By 1998, the nearby Tara East, Tara West and Ireland I sites had been totally excavated, and another nearby site (Five Acre Field) had been tested. All were interpreted as components dating to the Early Pickering substage of the Early Ontario Iroquois Tradition, and it was thought that Ireland II might be yet another Pickering component within this cluster.

The Museum's 1998 salvage excavation employed a crew of up to 13 people over a six-week period in September and October. Fieldwork involved further surface collection, manual excavation of 57 one-metre squares, then use of a Gradall to strip the plough-disturbed topsoil.

Soil conditions were deplorable and innovative field methods were utilized. The exposed subsoil, being hard-packed clay to hardpan, was watered down daily with 450 feet of hose attached to a nearby fire hydrant, then covered overnight with tarpaulins. Sections of tarpaulin were removed each morning and the moist subsoil was shovel-shined in an attempt to discover post moulds and features. Some sections of the site were shovel-shined a second, third or fourth time. When rows of good post moulds suddenly "disappeared", the subsoil was chunked out along trenches with shovels and pick axes, hoping to find post moulds in profile that were not visible in plan view.

In the end, six subsurface features and 485 post moulds were recorded. Of these, 335 post moulds were aligned in a single row palisade enclosing an egg-shaped area measuring 52 metres north to south by 52 metres east to west (approximately 0.18 hectare or 0.45 acre). There were 80 post moulds scattered in various places within the palisade, but no recognizable house walls or structures of any kind. There were another 70 post moulds outside of the palisade, but again these did not form any recognizable structures.

The six features were located along the palisade row or just outside of it: two clustered in the palisade row at the east edge of the site; two clustered in the palisade row at the south edge of the site; and two isolated ones beyond the palisade at the northwest corner of the site.

The 1980 to 1998 fieldwork resulted in the discovery of only 915 artifacts, including portions of only eight collarless ceramic vessels. These ceramics are remarkably similar to ones excavated from the nearby Tara East, Tara West, Ireland I and Five Acre Field sites, and along with other classes of artifacts serve to reliably date the site to the Early Pickering substage.

It is possible that natural erosion had depleted the original topsoil layer, and that over one hundred years of farm cultivation had disturbed the original subsoil, such that post moulds and features which might once have been on the site had been ploughed away. On the other hand, it is also possible that a palisade had been built, but the site was abandoned before any houses were built.

Final interpretations of the Ireland II site await analysis of flotation samples and receipt of radiocarbon dates.

CONSULTING ACTIVITIES OF SETTLEMENT SURVEYS LIMITED IN NORTHERN ONTARIO

JOHN POLLOCK

Settlement Surveys Limited is an archaeological consulting firm incorporated in 1979 with its main office in New Liskeard, Ontario. Regional representatives in 1998 were Mike O'Connor at Sault Ste. Marie and Mike McLeod at Thunder Bay. Dr. John Pollock is the manager of the firm that undertook forty-six projects during 1998 in the Blind River, Sudbury, North Bay, Mattawa, Temagami, Lake Timiskaming and Kapuskasing areas. Two staff members and one student were involved in these activities. One of the more interesting projects in the Lake Timiskaming area is described below.

THE GREY WOLF HERITAGE MINING SITE, FOREST ACCESS ROAD KLOCK & BARR TOWNSHIPS, - MATTAWAPIKA AREA, NORTHEASTERN ONTARIO

This project (Province of Ontario, Consulting Licence # 98-013), involved a preconstruction surface inspection and construction monitoring in areas of archaeological site potential along the right-of-way for a new forest access road in the Mowat Landing/Mattawapika area located in Barr and Klock Townships, District of Timiskaming (Figure 1). No sites were located on the road right-of-way but site documentation and mapping was undertaken of a circa 1905- 1910 mining exploration shaft and camp building foundations located within 3 metres-30 metres of the ROW edge. This project was the third stage of the road assessment with earlier reports on other segments being Settlement Surveys initial 1997 report (Project 97-24) for the bridge crossing and a second report for the Lundy Township portion of the access road project (Project 97-30). These consisted of monitoring initial clearing / mechanical surface stripping of the road right-of-way in potential areas and monitoring of the impact to a prehistoric site area (CiGx-2) by a licenced archaeologist (Settlement Surveys 1997,1998).

The proposed forest road development lies within the (CiGx-) Borden Block and although there had been no sites previously recorded within the study area, a total of sixteen sites had been recorded in adjacent areas upriver and downstream from the proposed access road.

Aboriginal sites along the Montreal River relate to four First Nations whose traditional territories overlap within this large and significant watershed which drains into the Ottawa River at Lake Timiskaming. These are the Temagami First Nation and Teme-Augama Anishnabai members (status/non status) from the Lake Temagami area.. The Matachewan First Nation, located north of Elk Lake, are part of Treaty No. 9. The Mattagami First Nation is to the west of the watershed headwaters and along with Matachewan are part of

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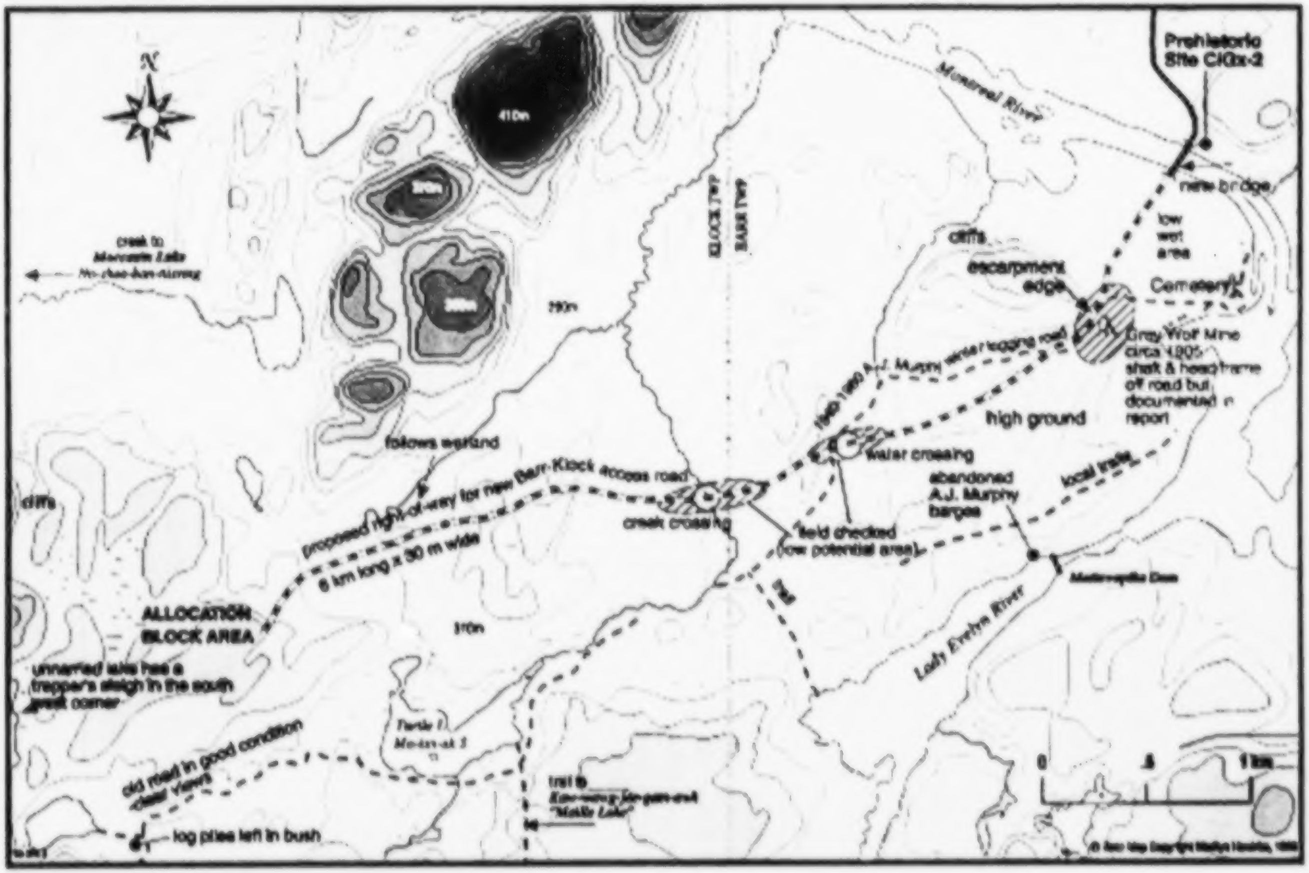
N
410m
390m
380m
390m
310m
creek to
Moccasin Lake
No-chee-bee-tizzing
Prehistoric
Site CIGx-2
Montreal River
new bridge
low
wet
area
cliffs
escarpment
edge
Cemetery
Grey Wolf Mine
circa 1905
shaft & headframe
off road but
documented in
report
1940-1960 A.J. Murphy winter logging road
high ground
water crossing
abandoned
A.J. Murphy
barges
local trails
KLOCK TWP
BARR TWP
follows wetland
proposed right-of-way for new Barr-Klock access road
6 km long x 30 m wide
creek crossing
field checked
(low potential area)
trail
Mattawapika Dam
Lady Evelyn River
cliffs
ALLOCATION
BLOCK AREA
unnamed lake has a
trapper's sleigh in the south
west corner
Turtle I.
Mo-kin-ak 1
old road in good condition
clear views
log piles left in bush
trail to
Kaw-waing-Sar-gain-sed
"Mattie Lake"
0
.5
1 km

FIGURE 1. Map of new forest access road showing archaeological potential areas and Grey Wolf Mine site

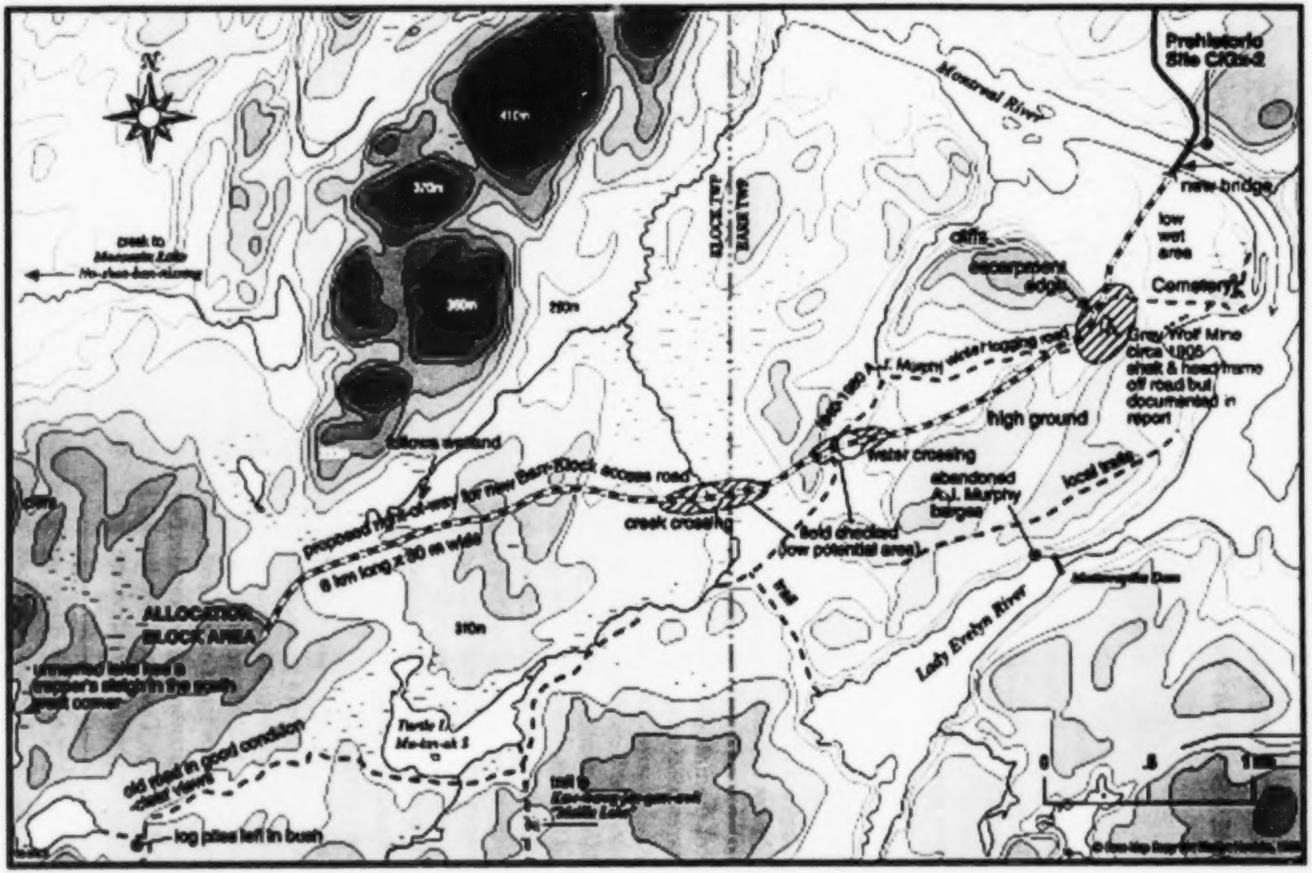
N
Prehistoric Site CfGs-2
Montreal River
new bridge
low wet area
Cemetery
cliffs
escarpment edge
Grey Wolf Mine circa 1905 shaft & headframe off road but documented in report
high ground
water crossing
abandoned A.J. Murphy barges
local trails
field checked (low potential area)
creek crossing
access road
proposed right-of-way for new
8 km long x 30 m wide
follows wetland
410m
370m
360m
290m
310m
ALLOCATION BLOCK AREA
old road in good condition
log piles left in bush
Turtle L.
trail
Lady Evelyn River
0
.5
1 mile

FIGURE 1. Map of new forest access road showing archaeological potential areas and Grey Wolf Mine site

the Nishnawbe-Aski Nation (NAN). The fourth First Nation is the Timiskaming First Nation located at Notre-Dame-du Nord in the Province of Quebec.

MINING AND LOGGING HISTORY OF THE MATTAWAPIKA AREA

The Lundy- Barr township study area is underlain by Early Proterozoic Lorrain and Gowganda Formation Sedimentary Rocks of the Cobalt Group of the Huronian Super group. The rocks were subsequently intruded by a moderately-dipping diabase sill and steep-dipping diabase dikes and plugs of Nipissing age. Middle Proterozoic diabase and olivine diabase dikes intrude all older rocks (Owsiacki 1985). Major structural features are the presence of the Lady Evelyn Lake anticline, major North-West trending faults and lineaments, east /west folds, diabase intrusions and the location of the Township between the Cross Lake and Montreal river Faults, two major components of the Lake Timiskaming Structural Zone.

Prior to and during the early days of the Cobalt silver rush, some minor mineral exploration for silver was undertaken along the diabase dike in the townships with at least three exploration shafts sunk.

The Mowat Landing/Mattawapika area was also in the centre of early logging activity. Gillies Brothers first logged just south of the area at Bay Lake in 1900-1906 with Swenson Brothers cutting ties near Mowats in 1905 along with the Empire Lumber company. At the same time J.R. Booth had annual log drives on the river bringing timber from his Elk Lake area limits.

In 1922, Grant & Dunn (Peter J. Grant and David Dunn) and later Grant and Alderdice (1934) logged the Mattawapika/Mowat's Landing area until 1942. The longest and most extensive logging operator in the Mowat'sLanding/Lady Evelyn area, however, was the A.J. Murphy Lumber Company (previously Conkey & Murphy Lumber Company) which operated in the area from 1916 to 1960. The Murphy limits ranged from the Montreal River west through Lady Evelyn and Diamond Lakes to Lake Temagami. Arthur James Lewis Murphy (1873-1951) opened his first mill at Latchford in 1916. The Murphy company had annual river drives of logs from the area until its dissolution in 1960.

THE NEW FOREST ACCESS ROAD

Grant Lumber Corporation and Liskeard Lumber Limited had proposed to construct a six kilometers long, 30 metre wide, right-of-way forest access road (see Figure 1) in Barr and Klock Townships which was a westerly road extension from the new bridge across the Montreal River built in the winter/spring 1997-98 and located about 1.2 kilometres north of Mowats' Landing. The road was to be constructed utilizing large backhoes and D6 & D9 bulldozers, and a variety of other equipment. This final Barr-Klock road alignment west of the bridge had three areas considered to be of moderate potential to contain archaeological sites. Settlement Surveys Ltd. undertook a preconstruction field assessment program prior to and during road building in the fall of 1998. The potential areas (identified from air photos) prior to road construction are shown on Figure 1. Archaeological field inspection of the two potential unnamed creek crossing areas did not locate any archaeological/ heritage sites or artifacts. Also, the crossing of an old winter logging road used by A. J. Murphy Lumber Co. in the 1940-1959 period was checked. No sites or features were located.

THE GREY WOLF MINE

The archaeological work did, however, result in the recording and documentation of a previously unknown and undocumented turn-of-the-century historic mine named the " Grey Wolf Mine" (CiGx-3) with intact equipment such as a steam boiler and hoist as well as the mine shaft and nearby camp buildings. Very few undisturbed mining sites of this age are preserved in Northeastern Ontario. This interesting heritage mining site complex is located within three to 30 metres of the new road and the construction crew was careful not to disturb it once it was brought to their attention.

Archaeology is especially useful in the documentation of this site as a careful and exten-

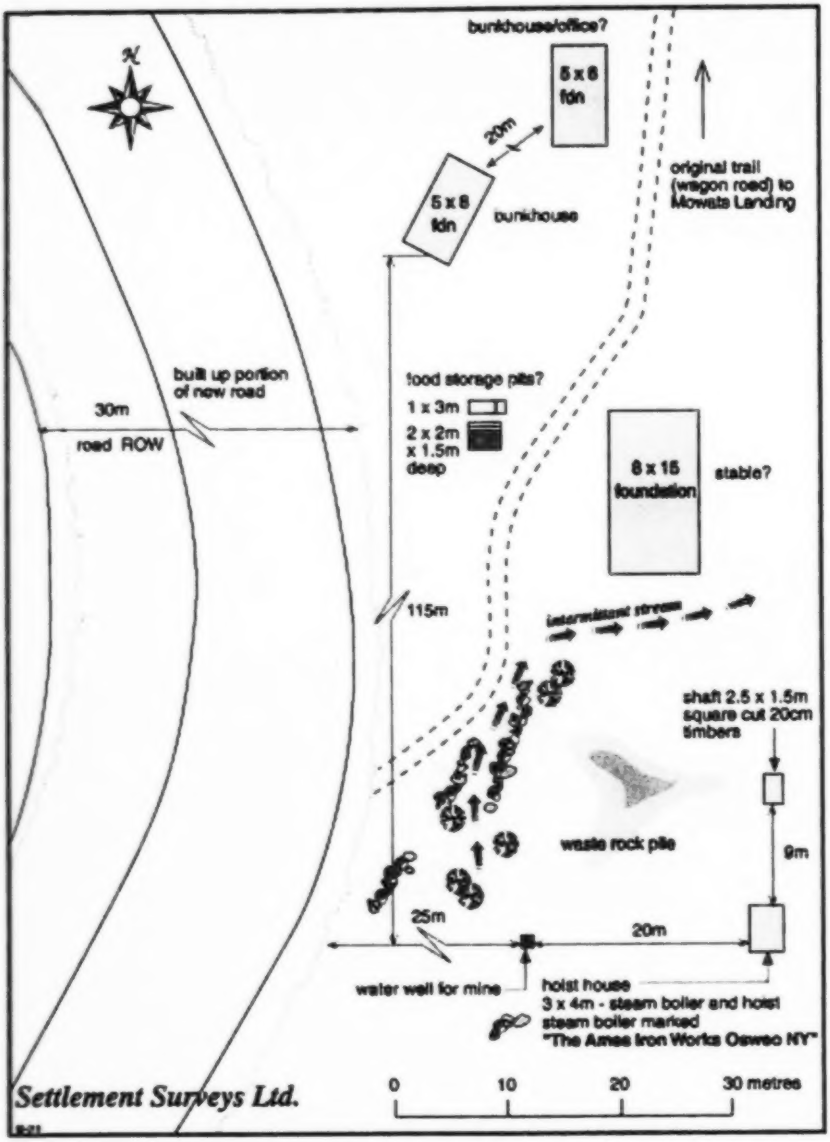
N
bunkhouse/office?
5 x 8
fdn
20m
5 x 8
fdn
bunkhouse
original trail
(wagon road) to
Mowats Landing
built up portion
of new road
30m
road ROW
food storage pits?
1 x 3m
2 x 2m
x 1.5m
deep
8 x 15
foundation
stable?
115m
intermittent stream
shaft 2.5 x 1.5m
square cut 20cm
timbers
waste rock pile
9m
25m
20m
water well for mine
hoist house
3 x 4m - steam boiler and hoist
steam boiler marked
"The Ames Iron Works Osweo NY"
Settlement Surveys Ltd.
0
10
20
30 metres

FIGURE 2. Sketch map of the Grey Wolf Mine c.1905-1908

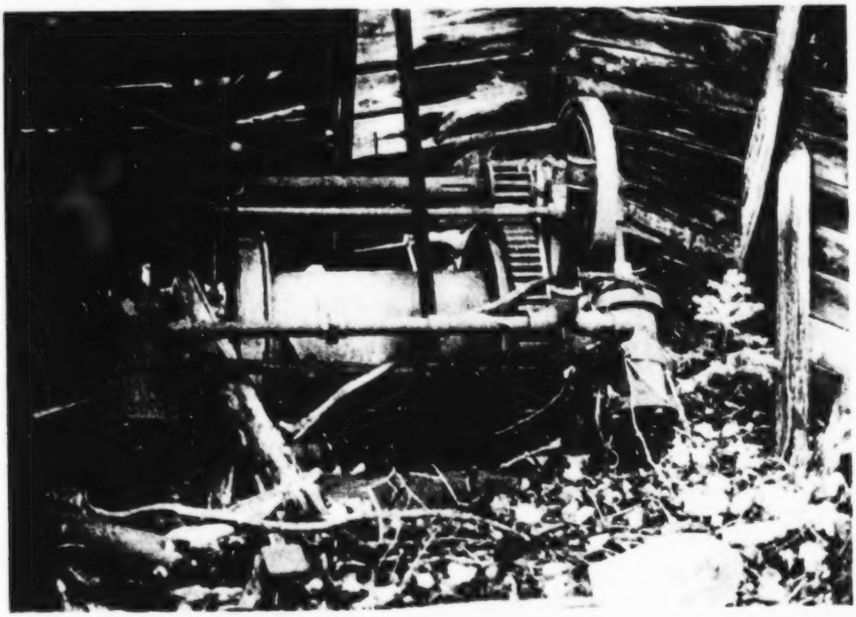

FIGURE 3. Grey Wolf Mine steam powered cable hoist used to lower men and tools and to remove rock from the mine shaft and underground workings.

FIGURE 4. Grey Wolf Mine shaft

sive search of records at The Ministry of Northern Development and Mines indicated that there are no written records of this early turn-of-the century era mine or its underground workings. Because of its location away from major mining areas, and difficult access, the equipment that in most cases would have been moved to another site was left and subsequently forgotten in the bush. From the map of the mine and support buildings (Figure 2) one can surmise that there was about a dozen men working at the site for about two years along with one or more teams of horses. The men lived in bunkhouses, one of which was built slightly better and may have served as the residence/office for the mine manager. The buildings were located in a relatively flat sandy area about 115 metres from the mine which is on the side of a steep hill. The shaft headframe no longer exists but the hoist room which contained the steam powered cable hoist (Figure 3) used to lower and retrieve men and rock from the mine was still intact. This is the only one the writer has ever seen in this good a condition from this early mining period. The shaft (Figure 4) was 2.5 x 1.5 metres and was lined with 20 centimetres hand cut square timbers. Judging from the large amount of blasted waste rock on the surface rock dumps, the shaft may be circa 100 metres deep and may have several lateral tunnels or exploration drifts running off at right angles from the shaft. All the work would have been done by hand without benefit of modern drills and power tools. A search of the rock dump failed to reveal any trace of the high grade silver ore these early miners were looking for and no doubt was the reason the mine was abandoned sometime before 1910.

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1996-98. Personal Communications: oral history of the Mattawapika area and other information was obtained courtesy of conversations with Sonny Mitchell (now deceased), a long time area resident who also provided the location and name of the mine.

SUMMARY OF 1998 RESEARCH BY ARCHAEOLOGICAL SERVICES INC.

RONALD F. WILLIAMSON, SHAUN J. AUSTIN, AND EVA M. MACDONALD

Cultural resource management activities, carried out within the context of land development, play a significant role in preserving and documenting the fragile archaeological record of Ontario. In addition to numerous heritage planning studies, the consulting firm of Archaeological Services Inc. (ASI), operated under the direction of Ron Williamson, conducted 134 archaeological assessments throughout Ontario during 1998, resulting in the registration or re-examination of 94 archaeological sites. Further investigations were conducted on several of these, as well as on sites discovered in previous field seasons. Eight of the projects undertaken by the firm are discussed in further detail below.

THE PEACE BRIDGE SITE (AFGR-9)

In preparation for the construction of a companion span for the existing Peace Bridge in Fort Erie, archaeological investigations were continued on the very large and rich buried archaeological deposit, associated with a chert quarry immediately adjacent to the Peace Bridge in the urban core of Fort Erie, Ontario (Williamson and MacDonald [ed.] 1997; Williamson and MacDonald 1998). Previous assessment of the extent of the buried deposit has confirmed its continuous presence below the surface of the roads, sidewalks, lawns and parking lots west from the Niagara River for some 400 metres, north from the Peace Bridge for approximately 600 metres, and south from the Peace Bridge for approximately 200 metres, thereby encompassing an area of about 30 hectares (74 acres). Work this year, completed under the project direction of Ron Williamson and field direction of Shaun Austin and Bruce Welsh, involved investigations in areas to be subjected to disturbance of a depth greater than 20 centimetres during construction (staging and impacts) of the new companion span, associated siteworks, service installation related to a new Commercial Vehicle Processing Centre, and associated road work.

The construction of a Niagara Parks Commission maintenance building, located approximately 40 metres east of Mather Circle, was to result in the disturbance of an approximately 800 square metre area (Figure 1). Pre-development mitigative excavations were required not only within the building footprint, but also on the building's sides, where new service trenches were to be placed. Excavations commenced with the mechanical removal of all recently imported overburden, including sod and clay. As with most of the southern end of the Peace Bridge site, a considerable amount of infilling had taken place on the Niagara Parks Commission lands in the 19th

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528 Bathurst Street
Toronto, Ontario M5S 2P9

and early 20th centuries as a result of the construction and subsequent dismantling of the Fort Erie Railway, the former Erie Road right-of-way and the construction of the original Peace Bridge. The entire area of the building footprint was hand excavated to bedrock in one-metre units. The maximum depth of soil deposits below the imported clay layer was one metre. The soil fills from each of the 784 one metre units were screened through six-millimetre mesh by layer.

As has been observed elsewhere at the southern end of the Peace Bridge site, two distinct paleosol layers were in evidence within the building site. The upper paleosol contained a mixture of pre-contact Aboriginal and historic Euro-Canadian material, while the generally thin lower paleosol yielded only pre-contact Aboriginal artifacts. Several discrete concentrations of Late Archaic to Late Woodland period bifaces and tool fragments were recorded in these layers along the northern edge of the excavation area, indicating the presence of tool production areas near the original shoreline.

Of the various service lines excavated, the electrical and water/sanitary sewer trenches proved most interesting. The electrical trench extended southward from the new building for 62 metres and thereby provided a cross-section that led out from the southeastern edge of the site into what was the former channel of the Niagara River (see Figure 1). Following this profile from north to south, it was possible to see precisely where the pristine lower paleosol disappeared and was replaced by naturally formed riverine sediments. The importance of this trench is that it has provided direct evidence for the location of the riverbank before substantial historic period disturbance.

The water/sewer trench was excavated from the northeastern corner of the new Niagara Parks Commission building for 86 metres to an existing main on the eastern side of Pier 1 (Figure 1; see Andreae et al. 1998). Following the mechanical removal of all imported fill, this trench was hand excavated in one-metre units. The stratigraphic profiles encountered within the trench indicated the presence of both an upper and a lower paleosol, with the lower paleosol reaching a thickness of 15 centimetres.

Approximately 25 metres east of the new building, a vertical limestone bedrock scarp that exposed two strata of chert was uncovered. At the base of the scarp was a slightly uneven limestone pavement. Close examination of the 40-50 centimetres high layers of interbedded chert and limestone on the face of the scarp revealed a number of negative flake scars on the chert layers. The limestone pavement was also covered by a debris layer of chert debitage and cobbles. These findings suggest that this area was a primary mining location from which raw material was obtained. This hypothesis is supported by Professor Peter von Bitter, Department of Palaeobiology, Royal Ontario Museum and Department of Geology, University of Toronto, who inspected the feature and prepared a brief geological report.

Although the numbers of bifaces and formal tools on top of the bedrock ledge averaged perhaps two or three per one-metre square, the first eight metres east of the scarp face yielded not only a greater number of decortication flakes and primary thinning flakes among the tens of thousands of pieces of debitage found in each one-metre square, but no less than 70 bifaces, one Genesee projectile point, and six hammer stones. Clearly this was an area of intensive core-reduction and tool-making.

A large area which will eventually form the entrance onto the new twin-span bridge was also excavated. This area begins as a narrow wedge between the Niagara Parks Commission property and the Public Bridge Authority property at a point some 25 metres northeast of the new Niagara Parks Commission building. From this point, the open cut area fans out to surround Pier 2 (Figure 1). As with other broad excavation areas at the Peace Bridge site, the open cut was overlain with a five-metre grid in order to facilitate the excavation of one-metre squares. Approximately 1,300 of the 1,800 one-metre squares in the open cut area were excavated. The stratigraphic profiles observed in this area resemble those obtained from the adjacent water/sanitary sewer trench.

In total, several thousand stone tools and ceramic fragments were recovered, as well as tens

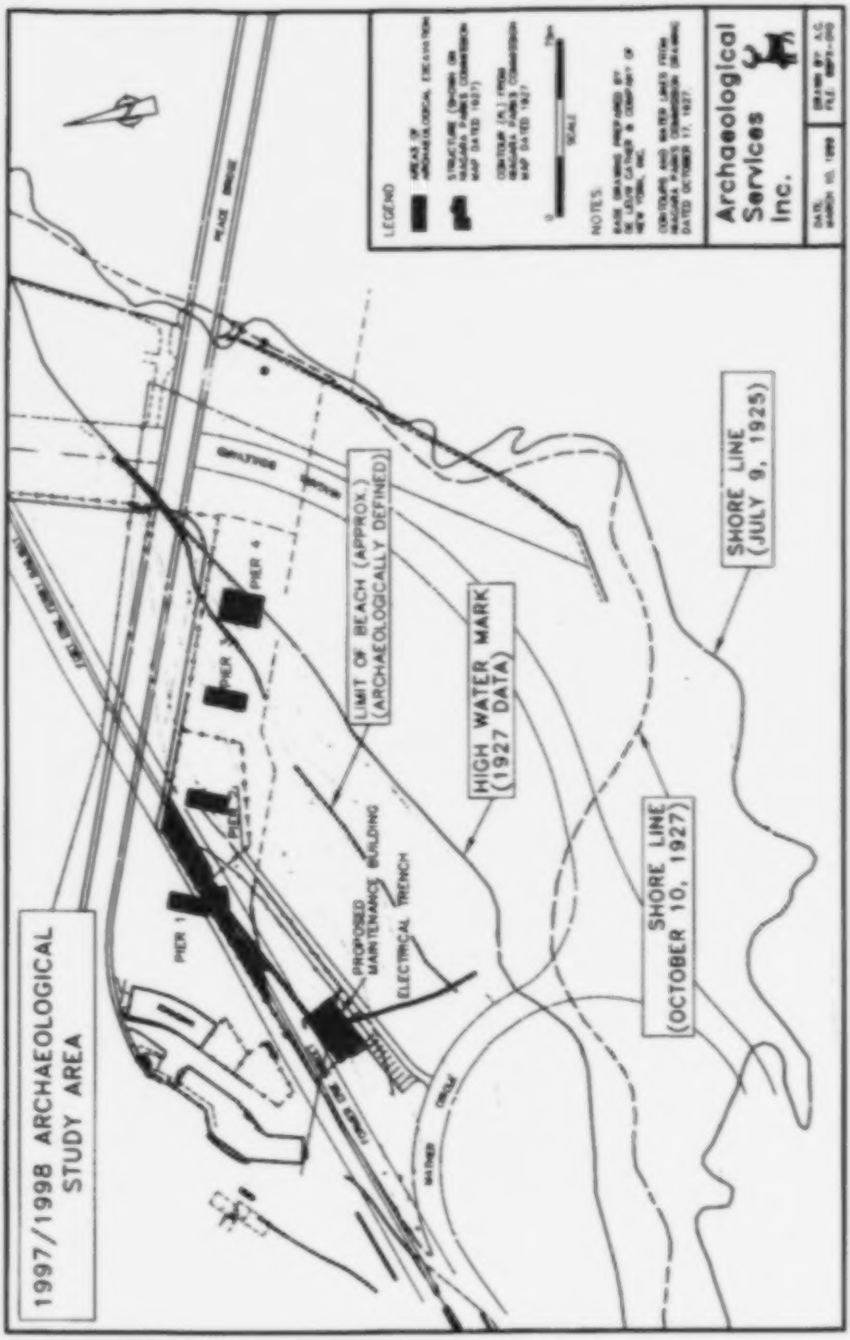
1997/1998 ARCHAEOLOGICAL STUDY AREA
PIER 1
PIER 2
PIER 3
PIER 4
PROPOSED MAINTENANCE BUILDING
ELECTRICAL TRENCH
LIMIT OF BEACH (APPROX.) (ARCHAEOLOGICALLY DEFINED)
HIGH WATER MARK (1927 DATA)
SHORE LINE (OCTOBER 10, 1927)
SHORE LINE (JULY 9, 1925)
PEACE BRIDGE
LEGEND
AREAS OF ARCHAEOLOGICAL EXCAVATION
STRUCTURE (SHOWN ON NIAGARA PARKS COMMISSION MAP DATED 1927)
CONTOUR (ft.) FROM NIAGARA PARKS COMMISSION MAP DATED 1927
SCALE
NOTES
Archaeological Services Inc.
DATE MARCH 10, 1999
DRAWN BY: AG

FIGURE 1. The area of the 1997 and 1998 investigations at the Peace Bridge site (AfGr-9) in the Town of Fort Erie.

of thousands of pieces of debitage from those units where all of the artifacts were collected. While the primary occupation of the site is Late Archaic Genesee, a significant result of this recent work is the documentation of an extensive Early Iroquoian component. Regardless of the period of occupation, people were clearly at the site to quarry the Onondaga chert that outcrops at that location, to fish and hunt, and to bury their dead as is attested to by the hundreds of burials that have been previously documented on the site.

THE KINGS POINT SITE (AHGs-24)

In August of 1998, ASI was retained to monitor earthmoving activities on the construction site of a large condominium development on Ricardo Street, situated adjacent to a former marshland near the mouth of the Niagara River in Niagara-on-the-Lake. The majority of the construction site is located on landfill placed in the marshland in the mid-19th century to stabilize the shore and permit the construction of docks.

A large multi-component site was discovered during monitoring activities in that portion of the construction site that is immediately adjacent to Ricardo Street. The first artifacts to be observed in the topsoil were two chert flakes. Construction activities were subsequently halted in the area of the site by Christopher Watts, the field director. The subsequent investigations involved the excavation of 315 one metre units that yielded approximately 40,000 artifacts dating to the pre-contact and early Euro-Canadian past of Ontario (Figure 2). These artifacts include over a dozen chert projectile points (Figure 3) diagnostic of the Early Archaic period (8,900 - 8,000 B.P.), the Middle Archaic period (5,500 - 4,500 B.P.), the Late Archaic period (4,500 - 3,000 B.P.), and the Middle to Late Woodland period (1,500 to 700 years B.P.). Several small pieces of Aboriginal ceramic cooking or storage vessels, used during the Woodland period, were also recovered. On the basis of the assemblage recovered to date, the site appears to have been used most frequently by hunter-gatherers between 5,500 and 3,000 and 2,000 and 1,500 years ago. These small bands were probably exploiting the rich natural resources of the nearby marsh and river. Substantial quantities of projectile points and flakes, made of Flint Ridge chalcedony and other exotic cherts, characterise the latter occupation.

Historic period artifacts such as a white clay smoking pipe, two War of 1812 period buttons and a small piece of a War of 1812 British shako plate, identified by Ron Dale of *Parks Canada*, were also found.

Although the area had been partially disturbed by 19th and 20th century activities, the investigation of this valuable archaeological site yielded significant information concerning the Niagara Region's past.

ARCHAEOLOGICAL INVESTIGATIONS IN THE RED HILL CREEK EXPRESSWAY

ASI was retained by the Regional Transportation Department of the Regional Municipality of Hamilton-Wentworth to conduct test and mitigative excavations of a number of archaeological sites that would be impacted by the construction of the proposed Red Hill Creek Expressway. While eight archaeological sites located along the corridor had been discovered by researchers prior to the expressway study, 13 new components—three prehistoric sites, five prehistoric findspots, and five historic sites—were discovered during the course of our survey of the valley. A number of sites thought to have been destroyed were also relocated and subjected to mitigative excavations. These are included in the site descriptions provided below.

THE KING'S FOREST PARK SITE (AHGw-1)

This site, located in what is now Rosedale Park, was encountered by Mr. Bill Fox in 1961. According to Fox, the spatial extent of the site included deposits on the western side of the creek, and a hillside midden on the eastern side of the creek. Although never thoroughly investigated, the site was the subject of sporadic test excavation over the next four years, which included a one-day public dig by the *Ontario Archaeological Society* in the summer of 1963. It was during this time that the City of Hamilton began construction of a storm sewer along the western edge of the Red Hill Creek, an exercise which heavily impacted the eastern edge of the site. Fox also worked on the site in the mid-1960s, excavating a midden on the edge of the woodlot adjacent to the northern playing field (now Diamond 6). Based on these investigations, and a calibrated radiocarbon date of A.D. 1255±60 (800±60 B.P. [TO-4322]) (Robert 1996:130-131), it was determined that the site dated to the Early Ontario Iroquoian period.

The site was relocated (in part) by a survey crew from the DelCan corporation in 1980. In their report, they noted that pottery sherds were found eroding out of a path leading to a steep embankment on the eastern side of creek. Shovel testpits were placed by DelCan on top of the eastern bank, in the area of the pottery sherds, but no additional artifacts were recovered. DelCan did not test the integrity of the site on the western side of the creek as it was located outside the proposed Expressway corridor.

King's Forest Park received further mention in a report produced by Mayer Heritage Consultants Inc. on their survey work within the Red Hill Creek valley (MHCI 1995). Despite mention that the King's Forest Park site was within their study area (1995:38-45), no effort appears to have been made to assess the actual extent of previous disturbance to the site. Curiously, there is mention (1995:96) of artifacts that "may have also been recovered from the King's Forest Park site (AhGw-1)" although the only candidate site is their Location 4 (AhGw-110), a ceramic findspot located at the opposite end of the valley (see MHCI 1995:71-73).

In an effort to define the site, ASI carried out an intensive, systematic test pit survey of the entire lower Rosedale Park area. Testpitting was conducted in the area of Diamonds 5, 6 and 7, on the northern playing field, at a 5-10 metre interval. Positive testpits, containing lithic flakes, ceramic and bone artifacts, were encountered immediately. Efforts to delimit the site were made over the following four days, resulting in a determination that the total site extended over an area of more than one hectare. In addition to the playing fields, testpitting was also conducted in the woodlot to the west of the baseball diamonds. Positive testpits were again encountered, particularly towards the southern end of the woodlot against an artificial berm constructed for a sanitary holding tank.

Having documented the presence of the site on the western side of the creek, the eastern side of the creek was also examined in an attempt to locate the hillside midden reported by Fox and DelCan. Artifacts were indeed found eroding from the slope encompassing an area of approximately 150 square metres. Although testpits were placed at the top and bottom of the slope, no additional artifacts were recovered.

In an effort to assess the integrity and distribution of subsurface settlement remains, four candidate areas were selected, and topsoil was removed by Gradall to expose the subsoil. In the first area exposed, a large ash-filled feature measuring approximately 1.2 metres in diameter was encountered, which yielded a sizable quantity of ceramic, bone and lithic artifacts. This feature was not excavated, and instead was covered over in advance of Stage 4 salvage excavation to be conducted in 1999. The remaining three areas of topsoil removal did not reveal any subsurface features or produce any artifacts. The 1999 Stage 4 salvage excavation of the site will be carried out in conjunction with a public programme in archaeology, sponsored by the Region and an ongoing fluvial research programme which is expected to yield important data regarding the former structure of the creek in the vicinity of the site.

SPERA SITE (AHGW-31)

The Spera site was originally registered by Bill Fox in 1977, but had never been formally investigated. Until it was re-located by ASI in 1996, the site had been presumed destroyed by industrial development and road construction associated with Queenston Avenue. The Stage 2 assessment concluded that the site was situated on, and defined by, a slight gravel ridge located 100 metres from Red Hill Creek (ASI 1998). Limited testpitting on the site determined that the archaeological de-

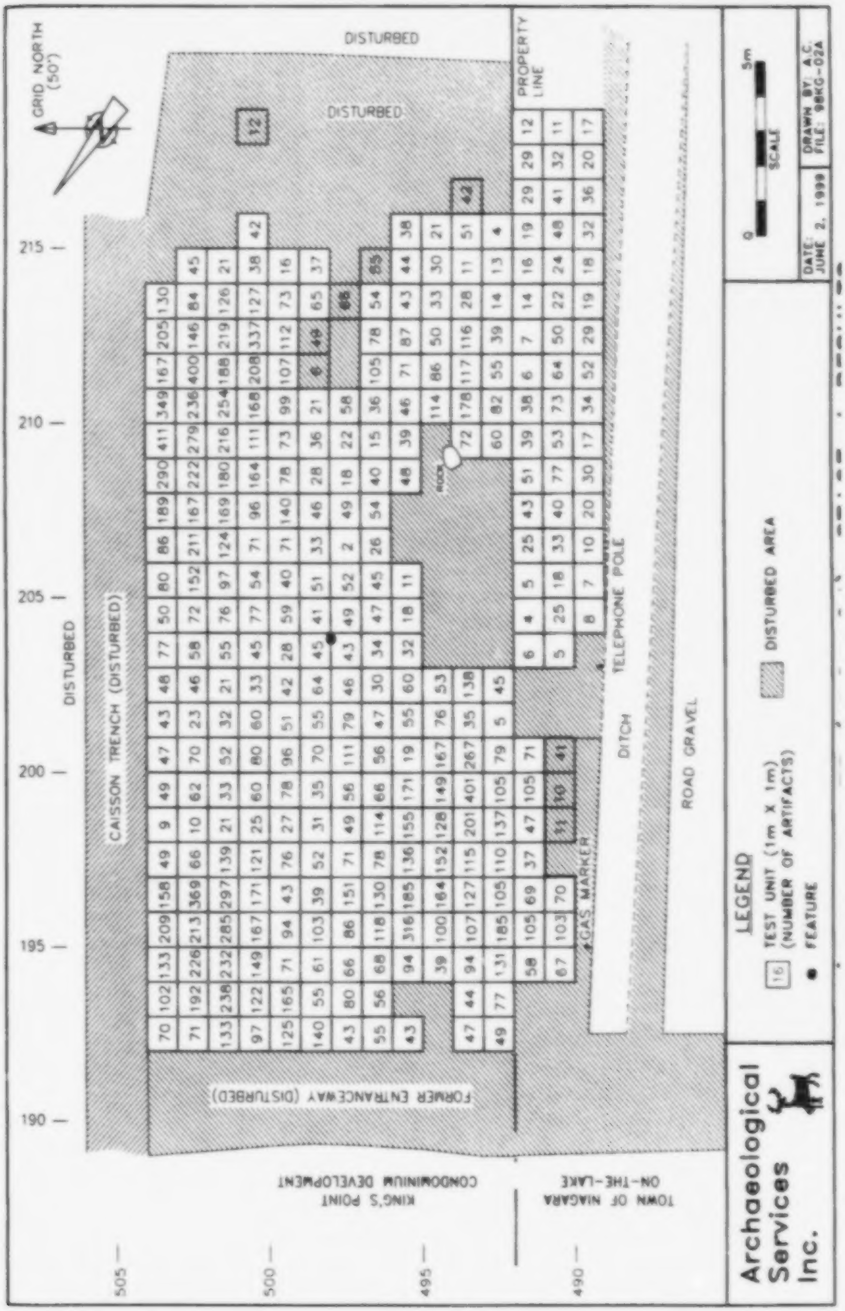
GRID NORTH (50°)
DISTURBED
CAISSON TRENCH (DISTURBED)
FORMER ENTRANCEWAY (DISTURBED)
KING'S POINT CONDOMINIUM DEVELOPMENT
TOWN OF NIAGARA ON-THE-LAKE
ROCK
PROPERTY LINE
GAS MARKER
TELEPHONE POLE
DITCH
ROAD GRAVEL
190
195
200
205
210
215
490
495
500
505
LEGEND
TEST UNIT (1m X 1m) (NUMBER OF ARTIFACTS)
FEATURE
DISTURBED AREA
0
5m
SCALE
DATE: JUNE 2, 1999
DRAWN BY: A.C.
FILE: 98KG-02A
Archaeological Services Inc.

FIGURE 2. The results of the Stage 4 excavations at the Kings Point site (AhGs-24) in the Town of Niagara-on-the-Lake.

posits were distributed over an area encompassing 500 square metres. The material recovered included one plain body sherd from a thick-walled ceramic vessel, three exfoliated sherds, and three pieces of lithic debitage.

The objectives of the subsequent Stage 3 assessment, undertaken in 1997, were to assess the productivity of the deposits, broaden the artifact sample, identify the cultural affiliation or date of the site and to determine its limits. This was completed through hand excavation of a series of 14 one metre squares (ASI 1998). All soil contents were screened through 6mm mesh. The topsoil consisted of a gravelly sandy loam that varied in depth from 10-35centimetres. The subsoil likewise ranged from sandy loam to gravel, and often included a quantity of loose, flat rock. The soil profiles appeared plough-disturbed, and this was confirmed by local informants who remembered agricultural activity in the area.

The modest sample of 66 artifacts recovered during the Stage 3 assessment includes one Middle Archaic Otter Creek type projectile point, one preform, and 64 pieces of debitage, primarily of Lockport chert. No ceramics were recovered during the Stage 3 test excavation.

The Stage 4 excavation, undertaken in 1998, represented a continuation of the process of hand excavating one metre squares within the area of the site (Figure 4). An additional 37 units were removed during this work, resulting in the recovery of a total of 482 lithic artifacts. Yields ranged from a low of 2 to a high of 43 items, with an average yield of 13 items per unit. Formal tools include portions of one refined and two crude bifaces. Several core fragments were also collected. Despite careful scrutiny throughout the Stage 3 and 4 investigations, no subsurface settlement features were encountered.

THE SPERA 2 SITE (AHGW-130)

During the 1997 Stage 3 investigation of the Spera site area, a linear distribution of 11 positive testpits was encountered 40 metres southwest of the site, on the same ridge (ASI 1998). Registered as the Spera 2 site (AhGw-130), it encompassed an area of approximately 1000 square metres and contained a modest sample of 34 chert artifacts, although higher artifact yields obtained from a cluster of six test pits located at the south end of the site suggested that the primary site area was approximately 250 square metres in size.

Stage 3-4 investigations completed in 1998 entailed the excavation of a total of 93 one metre squares (Figure 5). The soils at the site were comparable to those noted at Spera (AhGw-31) and had clearly been plough disturbed. All soil contents were screened through 6mm mesh. These efforts resulted in the recovery of 2,113 lithic artifacts. Yields ranged from a low of 2 to a high of 112, with an average recovery rate of 23 flakes per unit. Formal tools include a biface fragment, a scraper and a core fragment. Despite careful scrutiny throughout the investigations, no subsurface settlement features were encountered.

THE HENRY SITE (AHGW-123)

The Henry site is one of several historic archaeological sites documented by ASI in 1997 on the north-south corridor of the Red Hill Creek Expressway. It is located in the village of Mount Albion, which grew out of the milling industry established a short distance to the west at the head of the Mount Albion ravine (Turner 1962). Under the field direction of Christopher Watts, ASI returned to the Henry site in 1998 to conduct Stage 3 test excavations to further define its nature and extent.

The site is part of a larger tract of land granted to Augustus Jones in December of 1798, one of many given by the Crown to Jones in payment for his surveys of Saltfleet and Barton Townships. Jones had already settled on the lakeshore at the site of present-day Confederation Park, and eventually sold his Mount Albion tract to Levinius Van Dusen, Senior, in 1806. It is believed that Van Dusen purchased the property for the future of his sons and daughters, as his own home farm had been established elsewhere in 1800. In 1826, Levinius Senior sold 143 acres including the site area to his son, Levinius Van Dusen, Junior, who in turn sold it to Henry Spera in March of 1842. The property remained in the Spera family throughout the 19th century.

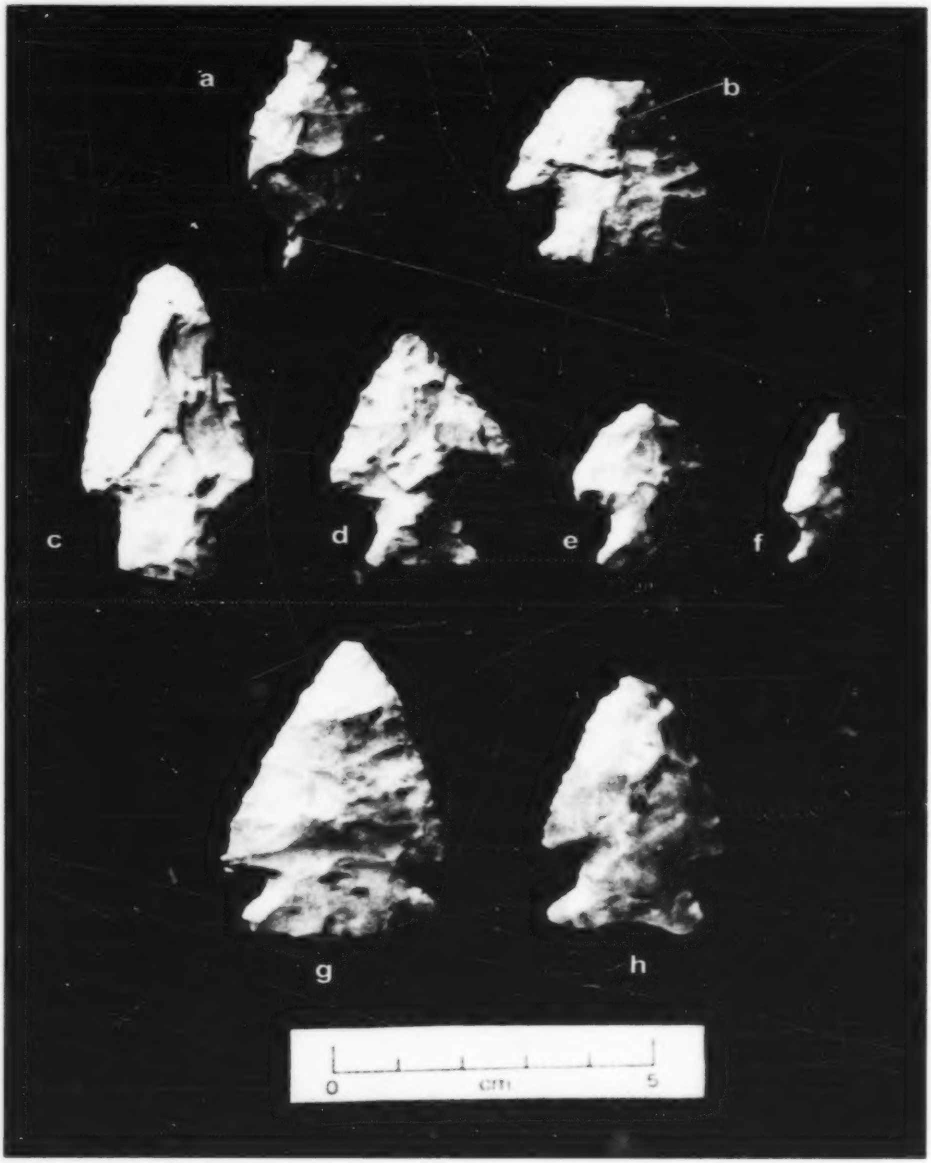

FIGURE 3. A selection of projectile points recovered from the Kings Point site (AhGs-24): Early Archaic Bifurcate Base (a); Middle Archaic Brewerton (b) Late Archaic Genesee (c); Innes (d), Crawford Knoll (e-f) Hind (g) and Middle Woodland Vanport (h).

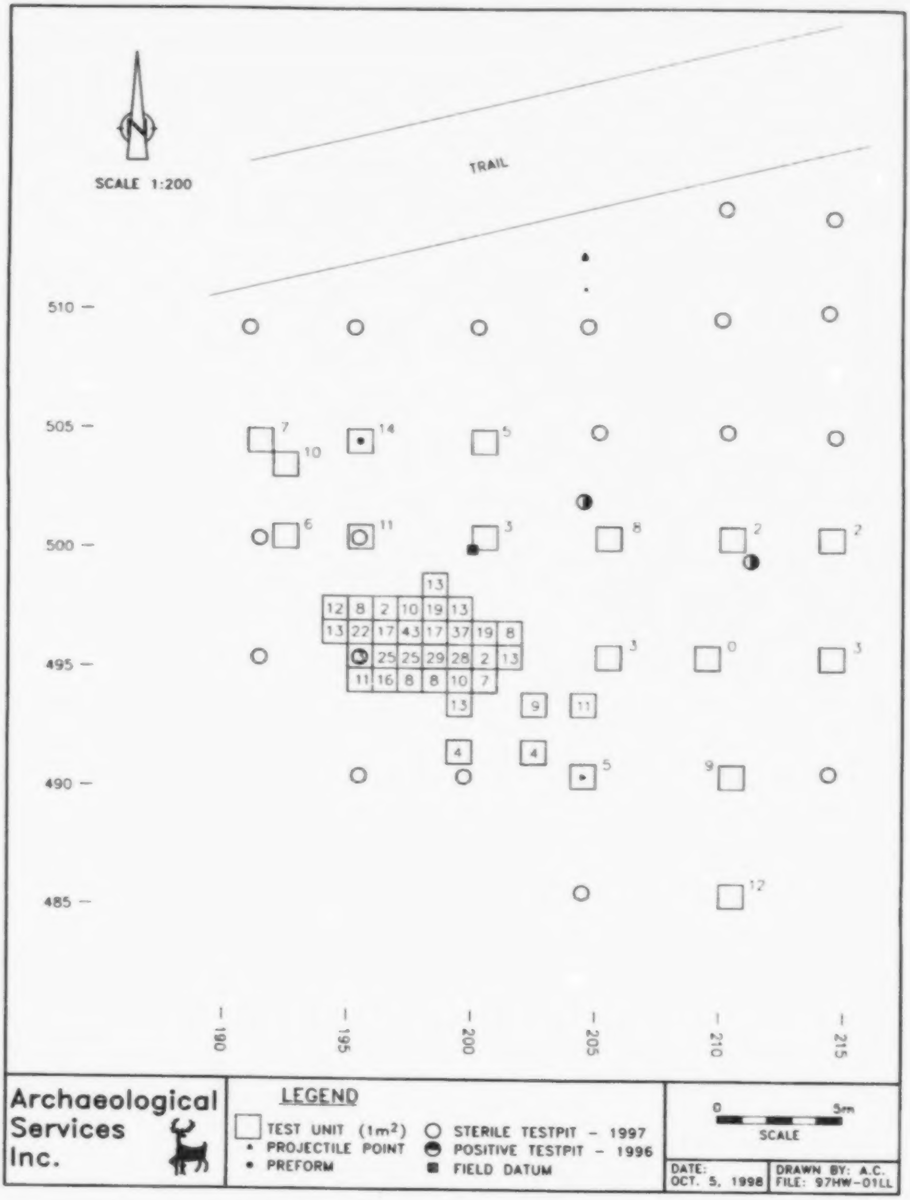
N
SCALE 1:200
TRAIL
510
505
500
495
490
485
190
195
200
205
210
215
Archaeological Services Inc.
LEGEND
TEST UNIT (1m²)
▲ PROJECTILE POINT
• PREFORM
○ STERILE TESTPIT - 1997
◓ POSITIVE TESTPIT - 1996
■ FIELD DATUM
0 5m
SCALE
DATE: OCT. 5, 1998
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FIGURE 4. The results of the Stage 4 excavations at the Spera site (AhGw-31) in the City of Hamilton.

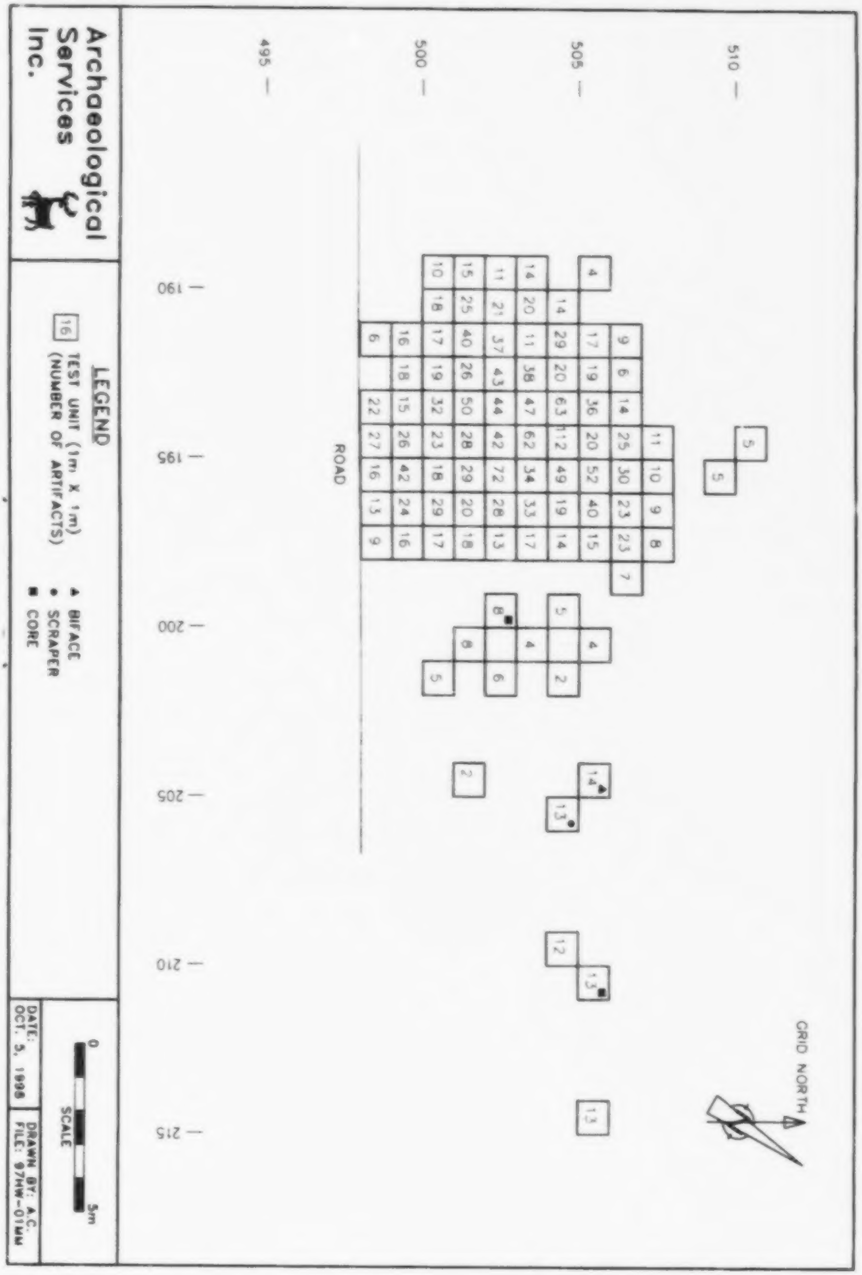
Archaeological Services Inc.
LEGEND
16 TEST UNIT (1m X 1m) (NUMBER OF ARTIFACTS)
▲ BIFACE
● SCRAPER
■ CORE
SCALE
0
5m
DATE: OCT. 5, 1998
DRAWN BY: A.C.
FILE: 97HW-01MM
ROAD
GRID NORTH
510
505
500
495
190
195
200
205
210
215

FIGURE 5. The results of the Stage 4 excavations at the Spera 2 site (AhGw-130) in the City of Hamilton.

The Henry site is located in a level agricultural field east of an abandoned limestone foundation and cellar constructed during the late 19th century occupation of the property. During Stage 3 testing, 19 one-metre square test units were excavated in the ploughzone to locate the former midden and to detect the presence of subsurface features. Higher artifact yields clustered at the east end of the site, where three pit features were uncovered. Notable finds include a 1751 George III coin and a fragment of red scalloped edgeware. Future work at the site will entail topsoil stripping to expose the subsurface features.

MASTER PLAN OF ARCHAEOLOGICAL RESOURCES OF THE REGION OF HALTON

Protecting archaeological sites has become especially important in southern Ontario, where landscape change has been occurring at an ever increasing rate since 1950, resulting in extensive losses to the non-renewable archaeological record. The most effective means of protecting those sites that remain is through adoption of planning and management guidelines that are informed by both the known distribution and character of sites and by assessment of the potential location of additional sites that have yet to be discovered. This is particularly crucial within Halton Region as it is anticipated that the population of the municipality will double over the next 20 years. This growth will require the expansion of existing urban areas and supporting infrastructure that is expected to result in the development of approximately 8,500 hectares of land.

In recognition of these facts, the Region of Halton retained ASI, in association with Geomatics International Inc., to prepare a planning study of archaeological resources for those lands within the Region. The Archaeological Master Plan of the Region of Halton had three major goals:

1) the compilation of inventories of registered and unregistered archaeological sites within the Region and the preparation of an overview of the area's settlement history as it may be expected to pertain to archaeological resources;

2) the development of an archaeological site potential model, based on known site locations, past and present land uses, and environmental and cultural-historical data; and

3) the undertaking of a review of the current Provincial planning and management guidelines for archaeological resources, as well as the identification of a recommended management strategy for known and potential archaeological resources within the Region.

By 1998, almost 600 archaeological sites had been registered within the Region. The majority of these sites represent the remains of small prehistoric camps occupied for short lengths of time, as people moved throughout their territories on a seasonal basis, hunting game, fishing and collecting wild plant foods. Some of these sites were occupied as early as 9,000 B.C. By the middle of the first millennium A.D., however, larger and more permanently occupied agricultural villages became more firmly established in conjunction with smaller camps and hamlets (e.g., Finlayson 1998). By the early seventeenth century, these people were known to be members of the Neutral confederacy.

In order to understand the manner in which additional, as yet undocumented archaeological sites may be distributed within the Region, an archaeological potential model was developed using a Geographic Information System (GIS) to map various sets of information as separate, but complementary layers of spatial data on 1:10,000 scale digital base maps. To this base mapping were added watercourses that appear on 1:25,000 and 1:50,000 topographic series maps as well as streams that appear on historic maps, but which no longer survive due to landscape change or drainage alteration. The distribution of soils, which were classified by type, texture and drainage, were also mapped as were the locations of all registered precontact archaeological sites, all unregistered sites that were reported to the study team, and all lands that had been subjected to comprehensive archaeological survey.

A series of statistical analyses were then carried out in an effort to examine potential relationships between archaeological site locations, water sources and the distribution of soils within the Region. The analyses indicate that 85% of all registered pre-contact sites are found within 200 metres of water.

Examination of the nineteenth century mapping of the Region, together with consideration of the basic historical themes that have been most influential in its development, led to the identification of areas of early settlement, commercial, industrial and transportation development and the mapping of these zones as areas of historic archaeological potential.

The final task in the analysis was to eliminate areas where previous development has resulted in extensive landscape disturbance. The remaining lands falling within the zones of pre-contact and historic potential encompass approximately 68% of the total landmass of the Region.

The role of the Regional Municipality in the conservation of these resources is crucial. Planning and land use control are predominantly municipal responsibilities and the impact of municipal land use decisions on archaeological resources is significant, especially since municipally-approved developments constitute the majority of land disturbing activities in the Province. The primary means by which these resources may be protected is through the planning approvals process. Furthermore, review of development applications for archaeological resource concerns are now to be made directly by the Region of Halton, as delegated by the Province in a Memorandum of Understanding. In recognition of these facts, the final task of the Master Plan research was the identification of a series of policies for incorporation in the Regional Official Plan and lower tier municipal Official Plans, and of practices within the development approvals process that will ensure the conservation of these valuable heritage resources within the overall process of change and growth in the Region.

The major recommendations to arise from the study are that the fragile nature of archaeological sites be recognized in the Region's Official Plan; that the Official Plan require that all future development applications in areas of archaeological potential be subject to an archaeological resource assessment; and that on those properties exhibiting archaeological potential where planning approvals were given, prior to the adoption of the master plan, then the development proponent should be advised of the potential presence of archaeological resources, and of the Region's interest in such resources.

THE LYNDE SITE (ALGR-110)

The Lynde site is located on gently sloping terrain north of a marsh associated with Lynde Creek, on Lot 30, Concession 3, former Whitby township, now in the city of Oshawa. Archival research determined that the site was related to the family of Jabez Lynde, a Quaker, who was credited with being the first settler west of the town of Whitby (Johnson 1973:45). He acquired several lots to ensure that his family would be provided for, and in December of 1823, Lynde transferred title to the west half of Lot 30, Concession 3, to his son Sylvester Lynde.

Sylvester Lynde's neighbour on the east half of Lot 30, William Paxton (Walton 1837:159), left a memoir of the early life in the township (Johnson 1973:55). Paxton described the hardships in the 1820s, prior to the establishment of the town of Whitby, especially the great distances one had to travel on primitive roads to reach such basic services as a grist mill or a general store. By 1851, however, the census of Whitby Township listed the Lynde family in a 1½ storey stone house, and one house on their property was vacant. This is probably a reference to Lynde's first log cabin, the location of the archaeological site, which was eventually superceded by a stone house as the family's fortunes improved. Thus the Lynde site represents a tightly dated, single family occupation.

Excavated under the field direction of David Robertson in the fall of 1998, twenty 50 centimetres square test units were excavated in the ploughzone to test for the location of the former midden and subsurface features. After topsoil stripping, one well, six shallow pit features and six posts were recorded and excavated. It is anticipated that when the analysis is complete, a clearer picture of pioneer life in Whitby township will emerge.

BALLANTRAE CACHE (BAGT-19)

ASI conducted Stage 3 and 4 investigations of the Ballantrae site, which was identified during a routine archaeological assessment of the proposed Ballantrae Golf Course and Residential Subdivision in the Town of Whitchurch-Stouffville. The investigations were conducted under the project direction of Mr. Martin Cooper and the field direction of Shaun Austin and David Robertson.

The site was located on the southern side of a low sandy knoll within generally rolling terrain on the Oak Ridges Moraine. While the site is adjacent to several swales that may have been seasonally wet, no major water courses are located nearby. Musselman Lake is situated approximately 1.4 kilometres to the south.

During the Stage 2 assessment, six Onondaga chert biface fragments were recovered leading to the Stage 3 placement of a series of one-metre test units across the site. Given the recovery of additional bifaces and cores, it was decided to completely excavate the site. Starting at the centre of the surface concentration and working outward, excavation continued until negative results were obtained in all directions. The locations of all Stage 3 and 4 excavation units, and the numbers of artifacts recovered per square, are shown in Figure 6. Overlain on this same map is the surface artifact distribution information acquired during the Stage 2 and 3 controlled surface collections.

A total of 219 one-metre squares was excavated to subsoil over the site area and all soil fills were screened through six-millimetre mesh in order to maximize the recovery of small artifacts. In addition, the floor of each square was carefully trowelled and inspected for subsoil discolourations indicative of cultural features.

Only one feature was documented at the site. This oblong pit measured 114 centimetres in length, 104 centimetres in width and 27 centimetres in depth. The profile shape was irregular. No cultural material was encountered within this feature, but it is possible that it had been impacted through deep ploughing, causing the cache contents to become mixed in the surrounding plough zone.

A total of 87 lithic artifacts was recovered. With the exception of one shatter fragment of Ancaster chert, one random core of Huronian chert, and one fragment of steatite, all specimens are of Onondaga chert. The chipped stone assemblage is comprised of 34 crude to moderately refined bifaces and biface fragments, 30 flakes and flake fragments and 22 cores.

Thirty-one (91%) of the bifaces in this collection may be described as complete. A selection of complete bifaces from the site is shown in Figure 7. With regard to complete specimens, 16 (52%) are "teardrop" shaped, seven (23%) are ovate, three (10%) are lanceolate, two (6%) are "D"-shaped, one (3%) is rectangular, one is triangular, and one is irregular.

There is a low incidence of both marginal retouch and/or obvious use wear (n=7/21%) on all bifaces and biface fragments, and a minor amount of cortex is visible on seven (21%). One complete biface appears to have served as an informal end and side scraper, as it displays steep unifacial retouch on both the distal margin and along one lateral edge (Figure 7:d). In addition, one of three fragmentary bifaces may represent the medial section of a finished projectile point as it is noticeably more refined than the rest of the assemblage (Figure7:k). Although this particular artifact had fractured due to thermal alteration, exposure to extreme heat was only evident on three bifaces or biface fragments (9%). The second of the three biface fragments was produced during the thinning of a larger crude biface. The third is an irregularly shaped piece of chert from which only a few flakes had been removed. Interestingly, a dark encrustation of unknown origin was observed on two of the complete specimens.

The lengths, widths and thicknesses of the complete bifaces average 50.4 centimetres, 34.2 centimetres and 10.9 centimetres, with ranges of 37-66 centimetres, 28-53 centimetres and 7-21 centimetres, respectively. The medians for these three dimensions are 48 centimetres, 32.5 centimetres and 10.5 centimetres. The modes are 48 centimetres, 30 centimetres and 10 centimetres and the standard deviations are 7.48, 5.03 and

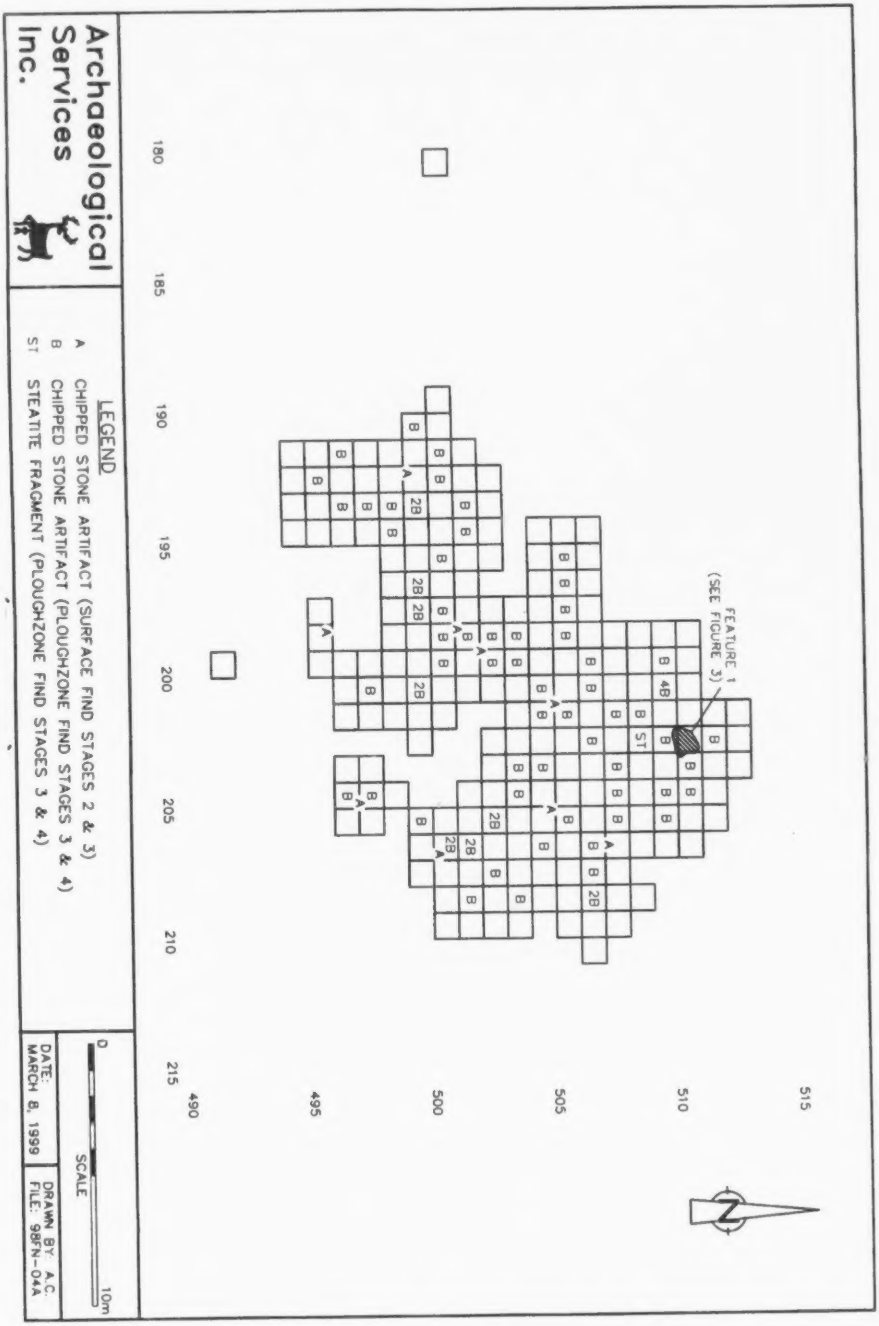
Archaeological Services Inc.
LEGEND
A CHIPPED STONE ARTIFACT (SURFACE FIND STAGES 2 & 3)
B CHIPPED STONE ARTIFACT (PLOUGHZONE FIND STAGES 3 & 4)
ST STEATITE FRAGMENT (PLOUGHZONE FIND STAGES 3 & 4)
FEATURE 1 (SEE FIGURE 3)
180
185
190
195
200
205
210
215
490
495
500
505
510
515
N
0
SCALE
10m
DATE: MARCH 8, 1999
DRAWN BY: A.C.
FILE: 98FN-04A

FIGURE 6. The results of the Stage 4 excavations at the Ballantrae site (BaGt-19) in the Town of Whitchurch-Stouffville.

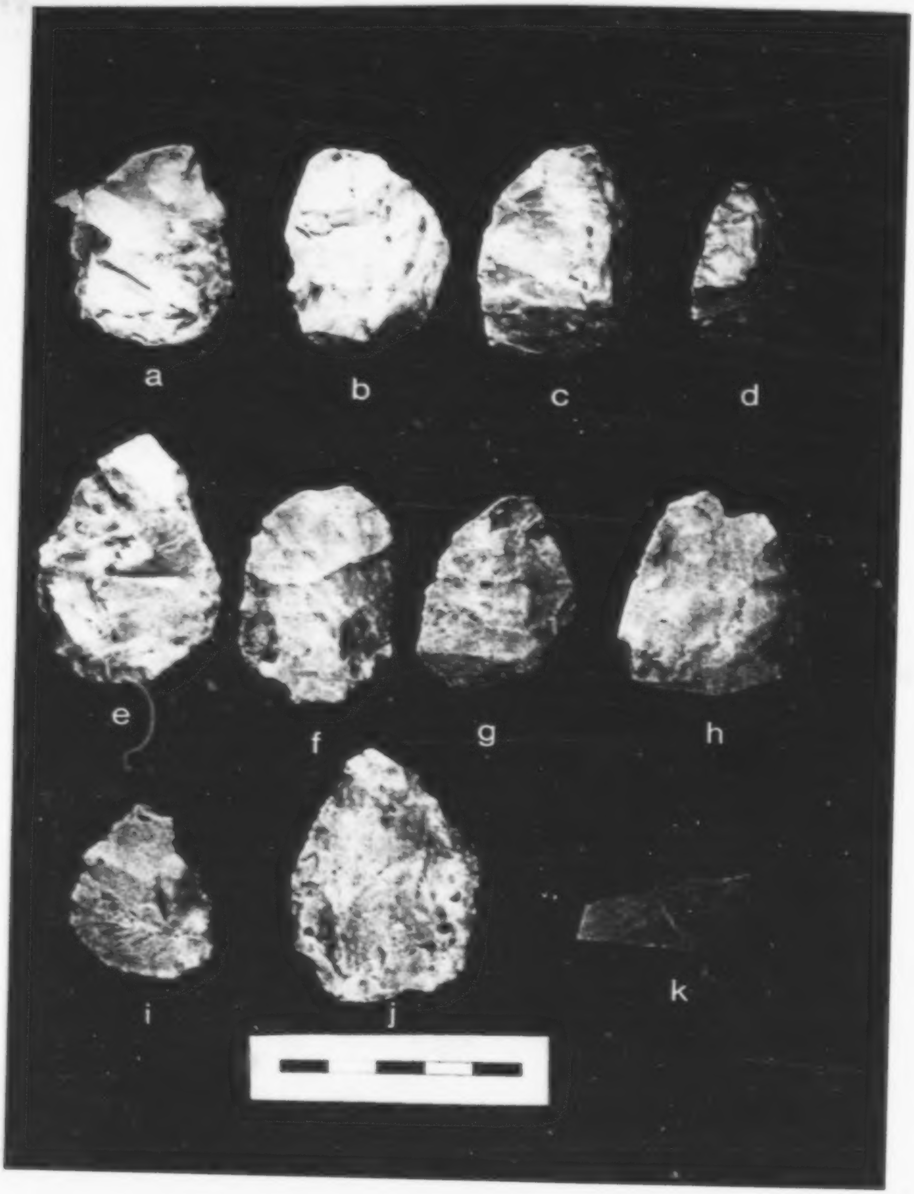

FIGURE 7. A selection of bifaces recovered from the Ballantrae site (BaGt-19).

10.93.

There was only a small quantity of debitage recovered from the site, including 12 shatter fragments, 11 primary thinning flakes, three bipolar flakes, two secondary knapping flakes, and two secondary retouch flakes. None of the flakes or flake fragments exhibits evidence of thermal alteration.

It is clear that the flakes and flake fragments in this assemblage were used for expedient tasks to a greater degree than were most of the bifaces and biface fragments. The incidence of use wear/ marginal retouch among the flakes and flake fragments totals 43%, as opposed to 21% for the bifaces and biface fragments. Use wear and minor marginal retouch is evident on eight of the primary thinning flakes (27%), two of the shatter fragments (7%), two of the bipolar flakes (7%), and one of the secondary knapping flakes (3%). One of the bipolar flakes exhibits steep unifacial retouch along two lateral margins and use wear along a third edge. As with one of the crude bifaces, this artifact may be referred to as an informal scraper.

Finally, 18 bipolar cores and four random cores were recovered. Fourteen of these cores (64%) are rectangular, seven (32%) are ovate, five (23%) are angular, and three (14%) are irregularly shaped. Thermal alteration was completely absent. Somewhat surprisingly, cortex is visible on only three of these cores (14%), indicating extensive core trimming. Use wear/minor marginal retouch is evident in only five cases (23%) some of which may have actually resulted from the preparation of the striking platforms rather than from the use of cores as expedient tools. As was the case with two of the bifaces, a dark encrustation is visible on one core.

The lengths, widths and thicknesses of all cores average 43.3 centimetres, 27.3 centimetres and 10.7 centimetres, with ranges of 24-56 centimetres, 17-38 centimetres and 7-16 centimetres, respectively. The medians for these three dimensions are 45 centimetres, 28.5 centimetres and 10 centimetres. The modes are 37 centimetres, 30 centimetres and 9 centimetres and the standard deviations are 8.4, 5.8 and 2.2.

A single triangular fragment of steatite or soapstone was recovered from the plough zone. This specimen measures 40 centimetres in length, 30 centimetres in width and 16 centimetres in thickness. Cortex is present on one flat surface, while the opposite face has been partially smoothed. Steatite was widely used by pre-contact Aboriginal peoples to make bowls, pots and pipes.

Cache sites, such as Ballantrae, typically contain groups of bifacially flaked chert artifacts that have been deliberately placed within one or more pits. This site is atypical, however, in that people may have been engaged in lithic reduction and animal or plant processing activities at the site, therefore, affording a rare opportunity to investigate variability in pre-contact caching behaviour. This premise is based on the assumption that the debitage recovered from the plough zone originates from activities undertaken on the site and not from having been transported to the site and placed with the bifaces and cores in the cache feature.

Limited primary lithic reduction was apparently taking place, as indicated by the presence of the 11 primary flakes, 12 shatter fragments and perhaps even the cores in the assemblage. Although much of the secondary retouch observed on the tools in the assemblage had likely been completed in another location (given the still relatively low frequencies of secondary flakes), the presence of two informal end/side scrapers and the significant numbers of artifacts exhibiting use-wear suggests that the occupants of the site employed expedient scraping tools. The presence of a culturally altered fragment of steatite might also suggest that a ground stone artifact was being refurbished or modified.

Since diagnostic artifacts were not recovered from the site, its precise chronological placement remains unknown. In general, 80% of all caches reported in the published literature date to the Terminal Archaic - Early Woodland period (ca 1500 B.C. - 400 B.C.) although there is clearly a long tradition of caching stone tools as indicated by the discovery of caches from as early as the Palaeo-Indian period (Williamson 1996; Figure 8). Middle Woodland examples are also numerous.

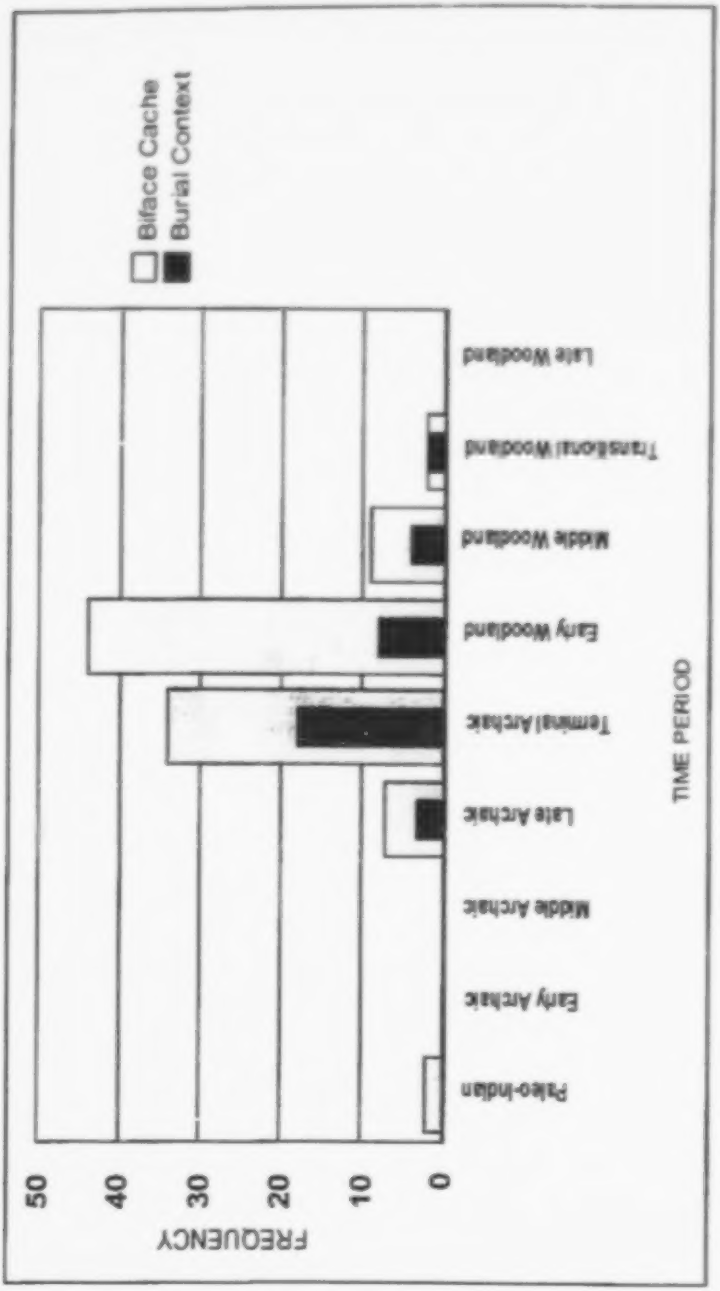

FIGURE 8. The occurrence of biface caches in the Great Lakes/Northeast region by time period.

The other noteworthy observation is the high frequency of Early Woodland caches that appear in non-burial contexts. While almost all Late Archaic and Middle Woodland caches occur on habitation or burial sites, 30% of Terminal Archaic and over 50% of all Meadowood caches are found in apparently isolated contexts, away from both burial and habitation sites. This appears to be the case for the Ballantrae site, given the lack of evidence for mortuary ceremonialism and only limited signs of habitation. The general quality of the knapping suggests that the site is neither Early nor Middle Woodland, but rather Archaic in origin.

While it is clear that cached bifaces represent more than simply mortuary items, as was originally thought by Ritchie (1969), their explanation as stored, surplus preforms from which a variety of tools could be produced (Granger 1978, Snow 1980), is also inadequate given the range and complexity of their cultural contexts. Simply, like many artifacts, these bifaces were used in both sacred and secular circumstances and their final deposition in one context does not preclude their having been used previously in others.

WELLINGTON SITE (BcGw-55)

The Wellington site is a plough-disturbed Iroquoian settlement that was estimated, on the basis of the Stage 2 and 3 assessments, to be a village site measuring approximately 1.0 hectare in size.

The Stage 4 excavations, howevet, conducted under the field direction of Robert Pihl, have revealed a rather different pattern. Only two, quite different houses were uncovered (Figure 9), despite the sizeable area excavated. To the east of the southernmost house, an apparent activity area was encountered. Ceramic and lithic artifact yields in the ploughzone in this area were comparatively high, but it does not appear to constitute a midden as the ploughzone did not overlie any undisturbed organic deposits, nor were any substantial quantities of faunal remains recovered. No settlement patterns were uncovered in this area either.

House 1 was regular in form for houses in the southern Simcoe region, although two fence lines extending south from within the house were notable. The second structure, however, was apparently open-ended on the eastern end and was characterised by both an atypical form and unfocussed feature distribution pattern. Between the eastern end of the house and the break-in-slope, a comparatively rich, but spatially limited refuse deposit was discovered and excavated.

The interpretation of the site will have to await detailed artifactual, floral and faunal analyses. An AMS radiocarbon date run on corn from House 1 yielded an age of 800 ± 50, calibrated to A.D. 1256, which is consistent with the early Middle Iroquoian (Uren) artifact assemblage recovered from the site.

HOLLY SITE (BcGw-58)

Stage 4 mitigative excavations were conducted on the Holly site under the field direction of Robert Pihl. While the northwest corner of the site was not excavated, topsoil was removed by Gradall from a large area, encompassing most of the original site limits (Figure 10). While no encircling palisade was documented, numerous fence-lines or isolated walls were recorded. The village contained three main house structures oriented somewhat parallel to one another and to the linear stream valley immediately to the west of the site. Two small, perhaps special-purpose, lodges were also documented, one on the east side of the cluster of fence-lines in the north-central section of the site and the other, at the extreme north end of the site. Three rather extensive middens were documented at the ends of Houses 1 and 3. At least one midden (associated with House 4) and possibly additional structures are extant in the unexcavated northwestern area. It is possible that the site also extends into the adjacent property to the north.

An extraordinary feature of the site was the discovery of four concentrations of animal bones, all found within House 4. Two of these were situated inside the house adjacent to the house wall. These features contained dense jumbles of bones, some juvenile and some with articulated segments (e.g. vertebral column, limbs). In both cases, several individuals and a mix of species (small rodents, weasels and raccoon) were encountered.

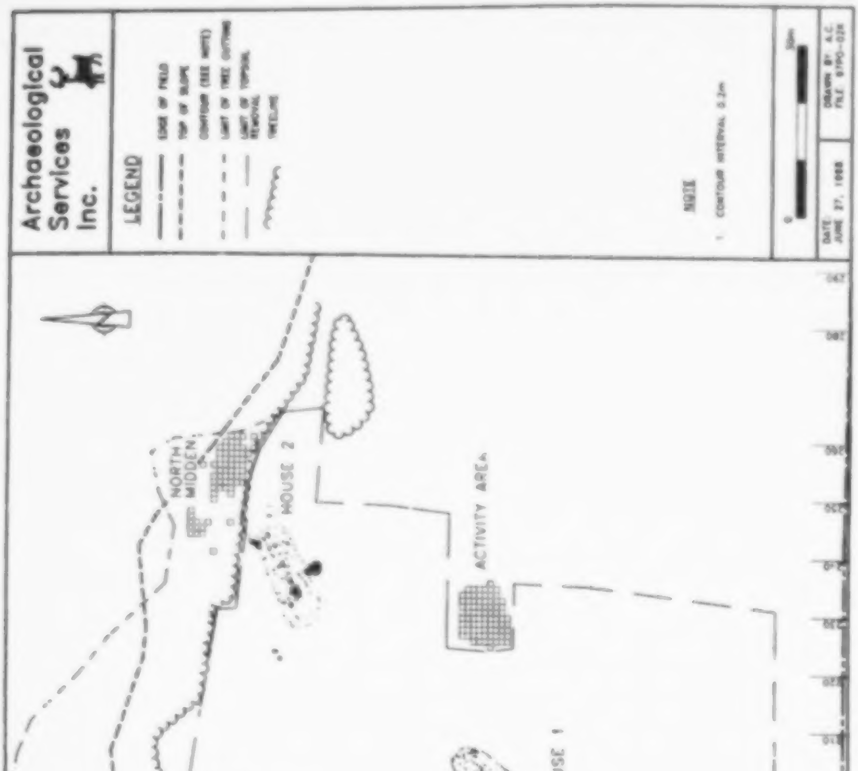
Archaeological Services Inc.
LEGEND
EDGE OF FIELD
TOP OF SLOPE
CONTOUR (SEE NOTE)
LIMIT OF TREE CUTTING
LIMIT OF TOPSOIL REMOVAL
TREELINE
NOTE
1. CONTOUR INTERVAL 0.2m
0
50m
DATE: JUNE 27, 1988
DRAWN BY: A.C.
NORTH MIDDEN
HOUSE 2
ACTIVITY AREA
HOUSE 1
580
570
560
550
540
530
520
510
500
490
480
470
460
450
440
120
130
140
150
160
170
180

FIGURE 9. Wellington Site (BcGw-55)

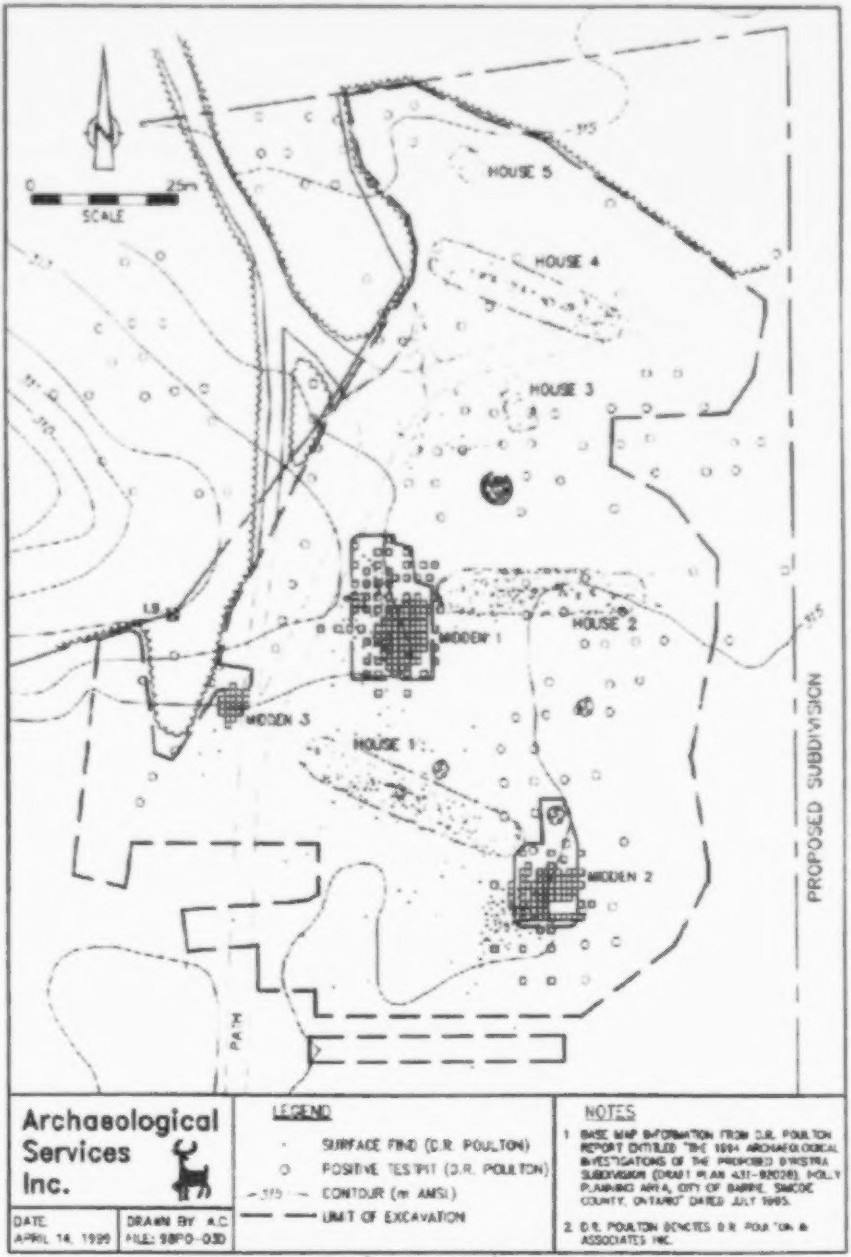
N
0
25m
SCALE
HOUSE 5
HOUSE 4
HOUSE 3
HOUSE 2
HOUSE 1
MIDDEN 1
MIDDEN 2
MIDDEN 3
315
LB
PATH
PROPOSED SUBDIVISION
Archaeological Services Inc.
DATE: APRIL 14, 1999
DRAWN BY: A.C.
FILE: 98PO-030
LEGEND
SURFACE FIND (D.R. POULTON)
POSITIVE TESTPIT (D.R. POULTON)
315 CONTOUR (m AMSL)
LIMIT OF EXCAVATION
NOTES
1 BASE MAP INFORMATION FROM D.R. POULTON REPORT ENTITLED "THE 1994 ARCHAEOLOGICAL INVESTIGATIONS OF THE PROPOSED DYKSTRA SUBDIVISION (DRAFT PLAN 43T-92028), HOLLY PLANNING AREA, CITY OF BARRIE, SIMCOE COUNTY, ONTARIO" DATED JULY 1995.
2 D.R. POULTON DENOTES D.R. POULTON & ASSOCIATES INC.

FIGURE 10. The results of the Stage 4 excavations at the Holly site (BcGw-58) in the City of Barrie.

The other two concentrations were found within the fill of a semi-subterranean sweatlodge. One was a tightly packed group of bones similar in nature to those described above while the other contained three crania and some pelvic bones placed in an unusual vertical stacked arrangement within a post. Two of the skulls were beaver while the third was a dog.

While samples from the site have yet to be submitted for radiocarbon dating, the recovered ceramic vessel assemblage is dominated by Middleport Oblique, suggesting its placement in the Middle Iroquoian period (ca A.D. 1300-1400).

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FIELD SCHOOLS

CATARAQUI ARCHAEOLOGICAL RESEARCH FOUNDATION

SUSAN M. BAZELY

INTRODUCTION

To fulfil part of its education mandate, Staff and Directors of the Cataraqui Archaeological Research Foundation continue to offer the "*Can You Dig It?*" summer archaeology camp to students of all ages. The first season of excavation on the site of the Naval Cottages at the Royal Military College of Canada (RMC) was conducted as part of this ongoing program. Archival research and excavations during the summer of 1998 raised several questions about the occupation of the cottages during certain portions of the 19th century prior, to the establishment of RMC in 1876.

THE NAVAL COTTAGES SITE

Archaeological monitoring during the installation of a new water main in 1995 was the only previous work conducted on Point Frederick (Bazely, 1995). It was apparent that vast sections of land on the Point remained undisturbed by recent activities, thus providing pristine archaeological context and data. A walk-over of the location of the Naval Cottages during the late summer of 1997 revealed that there were several limestone blocks visible on the surface.

During the fall of 1997 a Queen's University geological sciences student conducted a ground penetrating radar survey of the area to determine whether structural remnants of the cottages remained below ground (Crow, 1998). Also at this time, an intensive search in the archives was begun for any information relating to Point Frederick, the Naval Dockyard and the cottages. It became increasingly obvious that little was known about life on Point Frederick during the Dockyard Period and subsequent to it's closure.

FIGURE 1. 1998 excavations at the Naval Cottages Site during "*Can You Dig It?*"

Cataraqui Archaeological Research Foundation
370 King Street West
Kingston, ON
K7L 2X4

HISTORY OF THE OCCUPATION OF THE POINT

It was not until 1783 when French Fort Frontenac was formally re-occupied by the British military after the American Revolutionary War that 'Point Montreal' was considered for use. Re-named for General Sir Frederick Haldimand, Governor of Canada from 1777 to 1786, both Point Frederick and the adjacent Point Henry became part of the military reserve. Point Frederick became the headquarters of the Provincial Marine and during the early years of the dockyard several vessels were constructed. Being the trans-shipment point for government stores and the base for the Provincial Marine effectively established Point Frederick as the headquarters of the Navy on Lake Ontario.

With the outbreak of the War of 1812, a blockhouse was built on Point Henry and batteries were hastily constructed on Mississauga Point and Point Frederick. Defences were strengthened throughout the war, and a blockhouse was built on Point Frederick to protect the dockyard. In 1813 Commodore Sir James Yeo R.N. took charge of the fleet and all naval establishments on Lake Ontario were transferred to the Royal Navy. The dockyard at Kingston became heavily involved in the shipbuilding race which provided the means to end the war.

It is obvious that Kingston was a garrison town with soldiers and sailors, but who actually worked at the dockyard and who built the ships? The term *artificer* was often used on maps and in documents and refers to craftsmen, skilled mechanics and inventors related to the military or navy. Artificers were not, however, soldiers or sailors.

In a letter dated 30th October 1820 (National Archives of Canada) to the Principal Officers and Commissioners of His Majesty's Navy, from Robert Barrie, the Acting Commissioner at the Naval Yard, Kingston we learn that: the artificers were actually shipwrights, those responsible for the design and construction of the ships; accommodation on the point was less than comfortable, being decayed roughly built cabins; there was no bridge connecting the town of Kingston to the east shore of the Cataraqui River and the winds made the ferry crossing near impossible at certain times of the year; rents were exorbitantly high and the shipwrights also had families. Almost two years later, in March 1822 an advertisement appeared in the *Kingston Chronicle* (Stauffer Library, Queen's University):

"*NOTICE is hereby given that sealed Tenders will be received at His Majesty's dock yard . . . from all persons desirous to contract for building a range of 16* COTTAGES . . . "

Details of the cottages are given in the construction contract agreement dated 4th April 1822 and the associated carpenters and joiners contract (Massey Library, RMC). Some of these details are of interest in piecing together the archaeological puzzle. It is clear from historical plans, illustrations and photographs, that once erected, the Naval Cottages had an imposing presence on Kingston's waterfront.

The dockyard was closed in 1837, but border raids and the rebellion caused it to be hurriedly re-opened in 1838. It is not clear who was living in the Naval Cottages at this time, but it seems likely that it was necessary that some shipwrights would be present at the dockyard. Some references indicate that possibly the 66th Royal Berkshire Regiment (Stewart & Wilson1973:93) used the Naval Cottages as barracks in 1832. The cholera epidemic of that year claimed three men and one woman of the 66th and the company that was quartered there was removed to camp on the hill the next morning (Stewart & Wilson 1973:103), possibly Fort Henry. By 1834, some of the cottages were being rented out, tenant occupants and length of tenancy unknown.

The border crisis of the 1840s necessitated the dockyard remain operative and it was not closed until 1853 when the Board of Ordnance took charge of the property. It was again re-opened as the naval base for a final period in 1865 during the Fenian raids. It is highly unlikely that shipwrights were required during this latter period in the numbers that would have existed during the hay day of the dockyard.

It is not until 1868 that a clear picture emerges of who was inhabiting the cottages. On

FIGURE 2. Cott 1863 - 1 - Naval Cottages. Point Frederick, 1863, Queen's University Archives

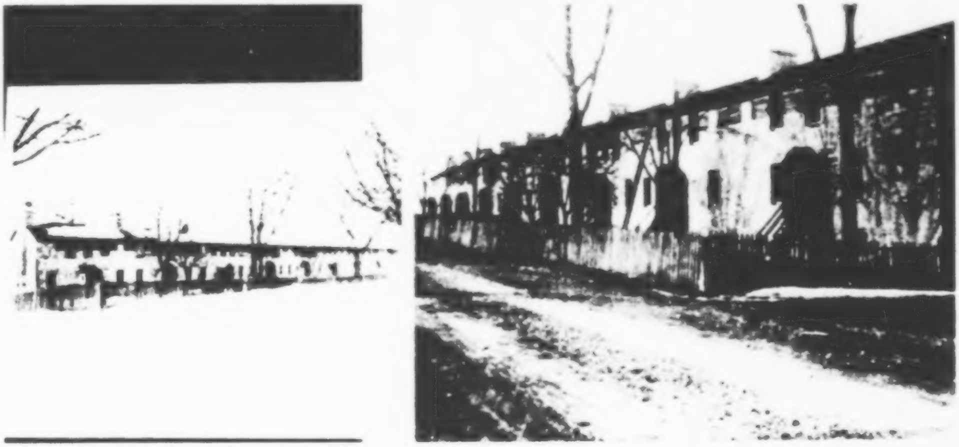

FIGURE 3. c1910 cott - c. 1910 Cottages 1-9, left is from east, right is from north, Royal Military College of Canada Museum Collection

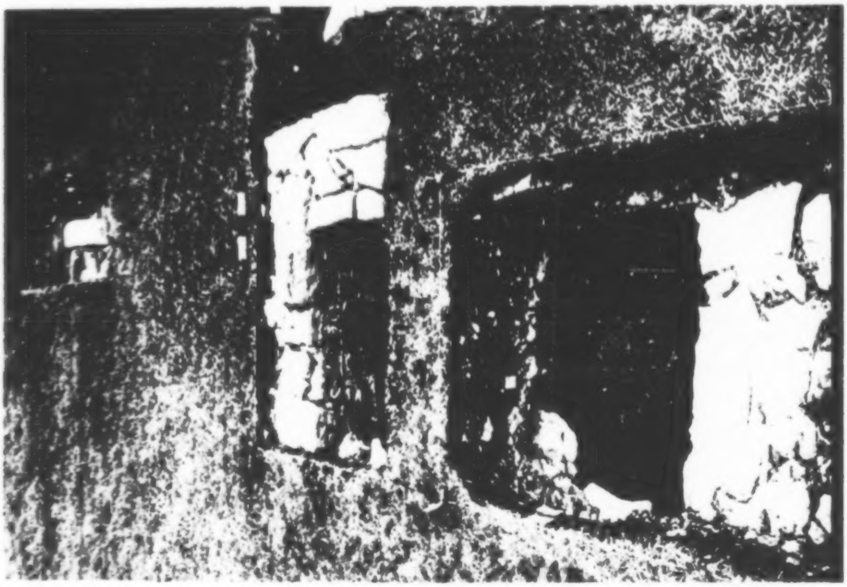

FIGURE 5. Cottage -16 - S - Limestone foundations of south end of Cottage No. 16 from southeast to southwest corner with central fireplace base

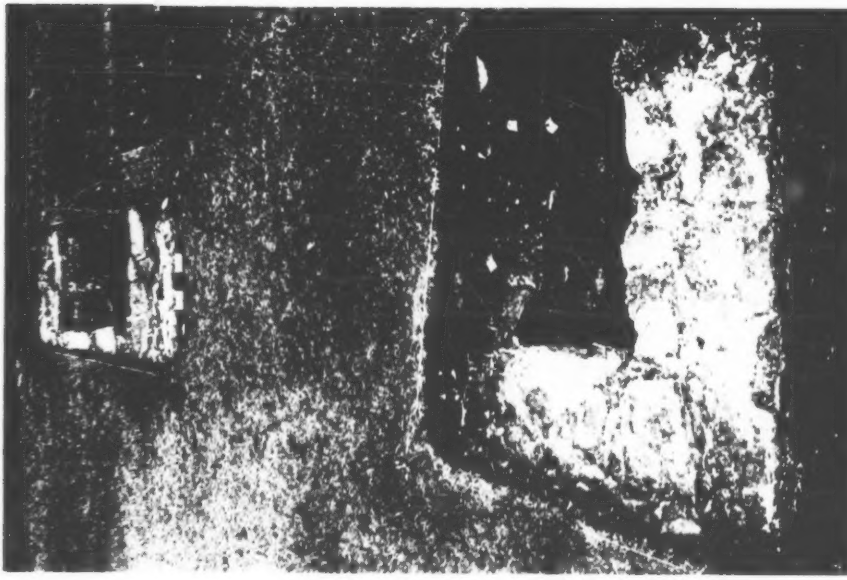

FIGURE 4. Cottage 15-16 - Limestone foundations of partition between Cottages No. 15 and No.16, from west wall to east wall with central fireplace base

the evening of August 30th a raging fire fanned by the winds began at the south end, eventually destroying cottages No. 10 to 16. A veritable spectacle for Kingstonians, recorded in the *Kingston Daily News* (Stauffer Library, Queen's University), fortunately with no loss of life. A Board of Inquiry (National Archives of Canada) was set up the next day to:

> ". . . *examine into and report upon all the circumstances of a fire which took place at the Naval Cottages on the evening of 30 August 1868.*"

The Board inspected the site, heard evidence from the occupants and determined that the fire must have been caused by someone cooking, contrary to orders, in their barrack rooms. The proceedings of the Board also included a list of items lost in the fire. All of the interviewed occupants were in the Royal Canadian Rifles and lived with their families in one of the four rooms of each cottage. As a result of the fire a total of 36 families were displaced from their homes. The damaged cottages were left standing and roofless until 1875 when they were finally torn down.

In 1870, all British military were withdrawn and the various establishments were handed over to the Canadian government. The dockyard property was used by the Canadian Militia. Detailed surveys were undertaken between 1869 and 1870 and all structures were accounted for. It was determined that the new and badly needed military college would be located at the former dockyard and another survey was conducted in 1874 to determine the state of all existing buildings. The fact that the cottages were required to have repairs made necessary for habitation, suggests that they were empty from 1870 on. The surviving nine cottages were subsequently occupied by servants and staff. It is not known at exactly what date they were finally abandoned, but the remaining row of stone cottages were sold at auction for $110 and torn down in 1910.

THE ARCHAEOLOGY OF THE NAVAL COTTAGES

A section of cottages destroyed by the 1868 fire was investigated during the summer of 1998. Both the fall and spring weather provided additional information on the location of individual rooms and fireplaces, through "crop marks" where the foundation walls were located close to the surface and provided poor growing conditions for the manicured lawns. Cottages No. 15 and 16 were located and six excavation units were laid in. Upon lifting the sod, three of those units immediately showed evidence of limestone walls - the south wall and fireplace of Cottage No. 16, a section of east wall of Cottage No. 16, the east wall of Cottage No. 16 where it joins the partition wall and fireplace between Cottage No. 16 and No. 15. As excavation progressed it became clearly evident that there were exterior and interior walls along with fireplace bases and rubble from the demolition. Eventually, the remaining three units revealed structural elements with the southeast corner of Cottage No. 16, the stairway foundation and interior wall of Cottage No. 15, and at a considerably greater depth, a fragment of the west wall of Cottage No. 16 where it joins the interior wall between No. 16 and No. 15.

It was expected that there would be evidence of the demolition, but the extent of rubble remaining on the site was quite small. The demolition and associated clean-up job in 1875, at the start of the RMC period was thorough. Clear evidence of the 1868 fire was also expected. Only one unit, that located within Cottage No. 15 contained large amounts of ash, a charcoal layer, burnt limestone and burnt artifacts. A bucket located beside the basement stairs may have been employed to fight the fire. Three regular household items speak of intense heat: the glaze on a cup was blistered then chemically altered; an iron lock had molten glass adhered to it and had cooled to an unrecognizable blob; the neck and lip of a wine bottle collapsed like a tube of toothpaste.

Part way through the summer, an additional three units were opened to assist in answering subsequent questions that had risen during the excavation. Excavation beside the fireplace between No. 16 and No. 15 revealed both demolition and fire with some indication of collapse into the basement, evidenced by the sloping stratigraphy. Another section of the west wall near the southwest corner of Cottage No. 16 provided

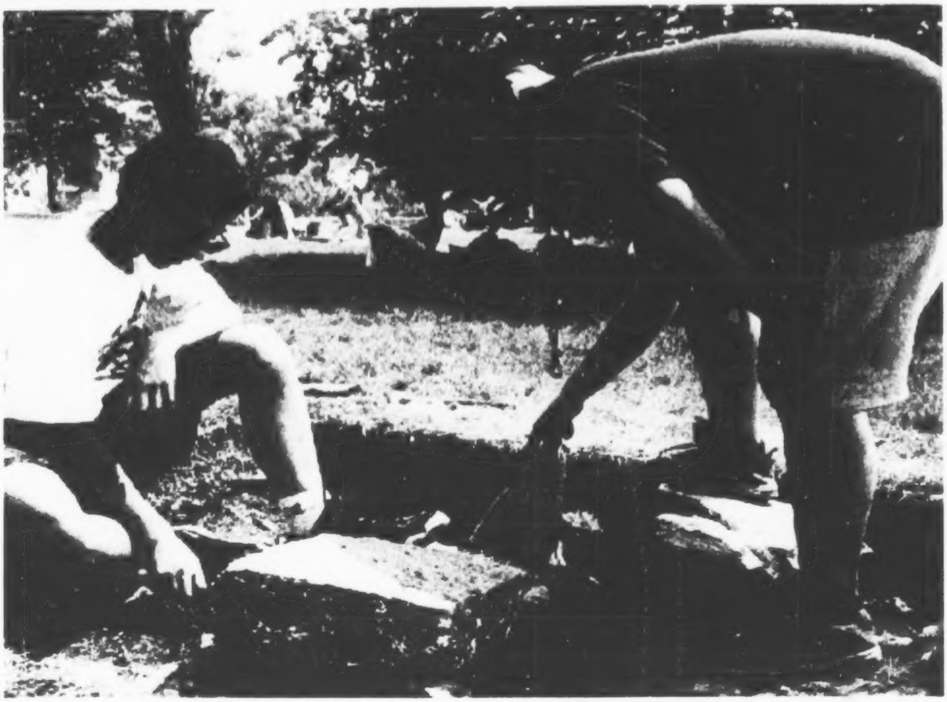

FIGURE 6. Boys cleaning foundations

a second more stable point for ascertaining the width of the structure. Close to the mid-point of the east wall of Cottage No. 16 it was hoped that the entranceway would become evident.

Unfortunately, the stratigraphy was not as simple as originally thought and evidence of construction appeared much more rapidly than expected. Builders' trenches for the east wall of No. 16, both exterior and interior suggests that Cottage No. 16 did not have a basement despite their mention in the construction agreement. In addition, the shallow depth of bedrock at the south end of No. 16, being 1 metre, provides more evidence for a lack of basement construction.

The units which exhibited no evidence of burning did contain a variety of artifacts that illustrate an occupation of a domestic nature rather than military. The ceramics include types and patterns which were available at the end of the 18th century and early to mid 19th century and are represented by creamware, hand-painted and shell-edge pearlware and blue transfer-print whiteware respectively. Cutlery types are representative of the 19th century with two-tined forks and bone handles. Evidence of clothing survived in the buttons, and their repair in straight pins and thimbles. Only two military buttons were located: one of the 62nd Regiment of Foot or Wiltshire Regiment, garrisoned at Fort Henry from 1862 - 1863; and one of the 15th Regiment of Foot or East Yorkshire Regiment, garrisoned at Kingston, Fort Henry and Fort Frederick (presumably the blockhouse or possibly the Naval Cottages) from 1827 - 1828, also from 1833 - 1834. This may provide a clue to who was living in the cottages during these periods, or perhaps it could be suggested that individuals from these regiments were visiting or even having their uniforms repaired by resident seamstresses.

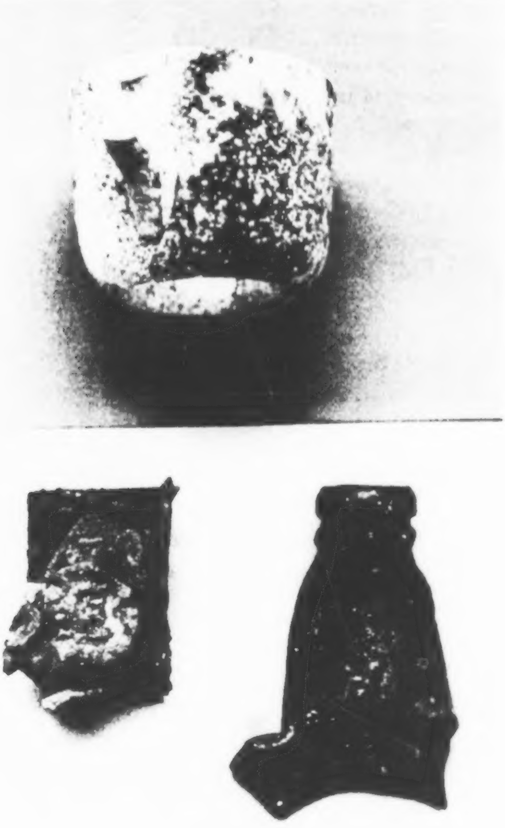

FIGURE 7. Burnt artifacts - cup, lock and wine bottle neck

While no coins were found, a total of four tokens were recovered. Subsequent to the Napoleonic War there was a need for small change in Britain and large numbers of copper tokens were produced in Dublin. All four half penny tokens were dated 1816, with two commemorating Arthur Wellesley, the Duke of Wellington and his success at the Battle of Waterloo and two recognizing the 'Hero of Upper Canada', Sir Isaac Brock and his heroism during the War of 1812. Three were found in close association with a wall, suggesting either loss or intentional placement during construction; the fourth was found in a deposit that predates the fire, possibly related to the original excavation for the foundation.

Substantial amounts of building hardware and architectural elements were recovered. Nails and window glass were prevalent with over 2,600 nails and over 2,500 fragments of window glass. Keys and locks were also relatively abundant and are interpreted as being most likely associated with chests or trunks and possibly interior doors. A shutter dog was also recovered, suggesting that at least one of the 296 windows had shutters at one time.

A huge number of artifacts, in excess of 8,000, were recovered during this first excavation at the Naval Cottages, all of which fit the time period of occupation. No late 19th century material was found within the occupation layers of the site. The south end, east side, and north end of Cottage No. 16 have now been investigated, but it is clear that more excavation on the interior of this structure is needed. Only one small area of Cottage No. 15, where the fire is suspected to have started, was looked at. Work thus far has generated more questions than are currently possible to answer. Further investigation of Cottage No. 15 is certainly warranted along with more archival research. A second season at the Naval Cottages Site is proposed for 1999.

ACKNOWLEDGEMENTS

This project could not have been undertaken without the co-operation, effort and input of many individuals. Thanks are due to Ross McKenzie, curator of the RMC Museum who assisted with the overall co-ordination of the program and acted as liaison with the RMC administration. Jonathan and Michelle Moore were persistent in their archival searches in Ottawa and Kingston and turned up a variety of resources which became indispensable to the project and the program. Heather Crow's research provided the project with some valuable data and insights. Appreciation and thanks also go to the instructors and assistants Michelle Moore, Mike Painter-Main, Alison MacLachlan and Alexis Lachaine and to the 77 participants of the 1998 "Can You Dig It?" Program who contributed their labours to finding out more about the Naval Cottages and Dockyard at Kingston.

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SUMMER AT THE BEACH: 1998 EXCAVATIONS AT THE ASHBRIDGE ESTATE, AJGT-1

MARTHA LATTA

During May and June, 1998, 27 undergraduate students participated in an archaeological field school carried out through a partnership between the University of Toronto and the Ontario Heritage Foundation.During the six-week project,they experienced a wide range of archaeological contexts and a stunning array of artifacts at the Ashbridge Site, AjGt-1.

The Ashbridge family emigrated to Toronto in 1794 and homesteaded land which is now situated on Queen Street East, immediately north of Ashbridges Bay (named for the family). The land remained in family hands for more than 200 years. This is probably the oldest intact residential property in the city of Toronto. Fort York, established two years earlier, provided military protection and some amenities. Lady Simcoe's diary notes a visit at Mrs. Ashbridge's log cabin in 1796.

A frame house was erected on the property in 1809. The cabin may have served for a time as a summer kitchen but at some point it was removed. No structural remains of the log cabin are visible, though the foundations of the (demolished) 1809 house survive as a point of reference.

Upon the death in 1997 of Dorothy Ashbridge Bullen, the Ashbridges estate, including the surviving 1840 house and extensive grounds, passed to the custody of the Province of Ontario. The Ontario Heritage Foundation had already ascertained that portions of the grounds remained undisturbed and hoped that excavation might reveal traces of the original log cabin. Initial tests, conducted by the Archaeological Resource Centre in 1988, produced a range of 19th century artifacts and evidence of deeply stratified deposits.

The 1998 excavation was carried out in three trenches which parallelled the north side of the 1809 house's foundations and cut through the site's three structural/activity areas. A fourth area, defined by cultural rather than spatial criteria, consists of earlier aboriginal remains.

1. At the west end of the site, cultural deposit averaged 0.4 meters in depth, with simple stratigraphy. Outbuildings were present here, according to archival documents, and their remains appeared as square post-moulds, often containing partially intact wooden posts.
2. The cabin's location, at the centre of the site, was indicated by fragments of plastered walls, some still bearing scraps of wallpaper, and of chinking. No logs or floor members were found, but a ditch, filled

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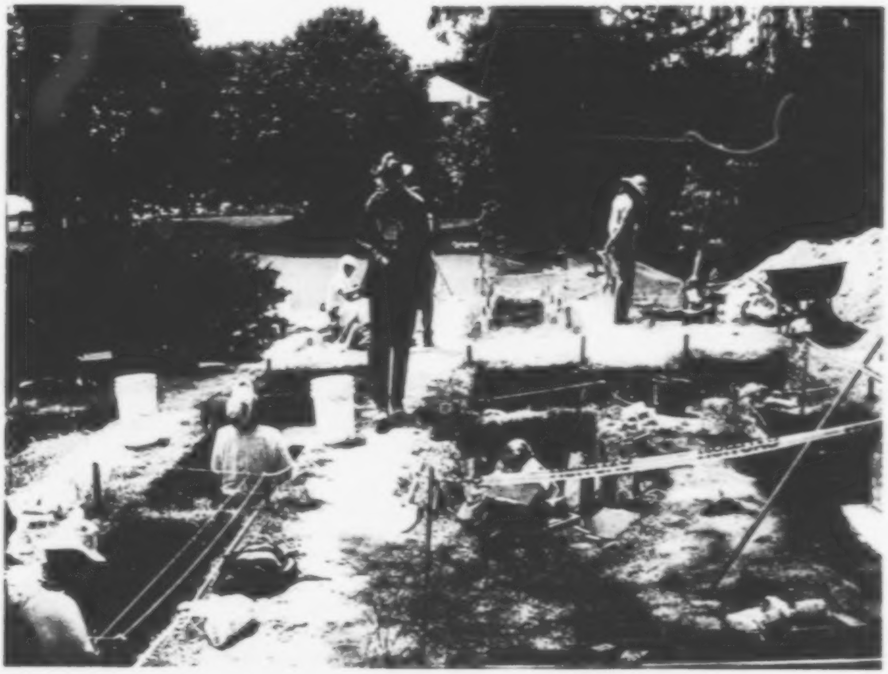

FIGURE 1. View of excavation area, looking west towards the 1854 Jesse Ashbridge house.

with wall debris, probably marks the location of one of the interior walls.

A fieldstone feature, situated at the north-west edge of the cabin location, may have been the remnant of a hearth with a brick chimney. It consists of roughly trimmed stones stacked to form a regular, low wall. It first appeared to be a foundation, similar to that of the 1809 house, but it appears that this structure is quite small, extending only about 2 meters in east-west length and perhaps 1 meter in width. Much of the site is littered with broken brick, some of it undoubtedly from chimneys in the log cabin and 1809 frame house.

3. In the eastern portion of the site, the trenches intersected a cellar, nearly two meters in maximum depth, with earth walls and a wood floor. The cellar had been filled with debris which created a sequence of more than twenty distinct strata.

Within the cellar, the lowest layer contained masses of very complete artifacts: plates broken in half, large pieces of earthenware crocks and so forth. At the end of the last day, at a depth of nearly two meters, a hole appeared at the bottom of this trench. The hole led to a larger opening which is lined with mortared brick. It is a well or cistern, capped with a vanished cover and then buried under nearly two meters of 19th century refuse and fill. The well, which clearly dates from the earliest period of site occupation, remains to be investigated.

4. A number of aboriginal artifacts were found in all three historic areas. Unfortunately, most were in 19th century contexts and may be rejects from a documented collection. These include Pickering Tradition ceramics, a ground stone adze, a pecked stone gouge, and several projectile points ranging in style from Middle Woodland to Archaic. A hearth, located below the historic deposits in Area 1, is clearly pristine; it contains fragments of chert and small sherds.

ACKNOWLEDGEMENTS

We hope to return for another season at the Ashbridges Site. Thanks to the Ontario Heritage Foundation for making this opportunity possible.

THE 1998 ERINDALE COLLEGE FIELD SCHOOL AT THE SASSAFRAS POINT SITE (AhGx-3)

DAVID G. SMITH

INTRODUCTION

In 1998, the Department of Anthropology, University of Toronto at Mississauga, continued its tradition of annual two-week archaeological field schools in the late summer. The field component of the course was conducted in Cootes Paradise at the Sassafras Point site (AhGx-3), where the 1997 field school conducted its excavations (Smith 1998). As in the past, the pedagogical aim of the field school was to provide instruction and practical experience in basic archaeological data collection and processing methods in the context of an on-going, large-scale research programme (the Princess Point Project). The research objective of the 1998 field school was to investigate further the nature of Princess Point settlement patterns at the site. For further information on the Princess Point culture and previous archaeological work at Cootes Paradise, see Stothers (1977) Smith (1997; 1998), Smith and Crawford (1997), Smith et al. (1996).

Sassafras Point is a small peninsula jutting into Cootes Paradise on its northern shore. To distinguish this landscape feature from the site situated on it, the peninsula will be referred to in the rest of this report as the Sassafras Point Geographical Feature (SPGF). The natural environment of the SPGF was described in some detail in Smith (1998); suffice it to say here that SPGF is a promontory on the southern shore of Cootes Paradise, Hamilton, Ontario. It is divided into two sections: a high bluff close to the base, and a lower, flat area toward the point. The archaeological site is located on the lower level.

FIELD ACTIVITIES

In 1997, test pitting and test excavations showed that the site was occupied both in Princess Point times (AD 500-1000) and again later during the Middle Ontario Iroquoian (MOI) period (AD 1300-1400). It was determined that the MOI component, at 7000 square metres in size, covered most of the lower level of the SPGF. The area of the Princess Point component was confined to 3500 square metres toward the end of the SPGF. The Princess Point component is completely overlapped by the MOI component. In 1997, ten one metre squares were excavated at five metre intervals (Smith 1998:81, Figure 2). These squares revealed the presence of features and post moulds, but it was impossible to determine with which component these were associated.

In 1998, it was decided to open up larger areas in the same part of the site as the 1997 excavations, in order to further investigate the evidence of settlement patterns at the site. Specifically, the hope was to be able to distinguish between Prin-

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FIGURE 1. Photograph of Data Recording on the Sassafras Point Site in 1998

cess Point and MOI settlement features, and to recover datable material, such as carbonized maize fragments, from an uncategorical Princess Point context. The tactics of the 1998 excavations were to re-open the squares excavated in 1997, and then excavate further squares around them, with the location of the new squares determined by emerging patterns of post moulds and features. Accordingly, 12 new squares were opened up in four separate areas, for a total exposed area of 22 square metres over the two years of investigation. In 1997, excavations were conducted in one metre squares in arbitrary 5 centimetres levels. In 1998, we chose to excavate in natural strata: (1) an 'A' horizon of leaf mulch and recent soils, (2) a 'B' horizon of fine, brownish soil, (3) a 'leached-out' base to the 'B' horizon, and (4) yellow subsoil. A 10 litre flotation sample was taken from each stratum, excluding the subsoil. Except for the flotation samples, all soils were sifted through 1/8 inch mesh. The difference between the leached-out B horizon and the subsoil was difficult to determine. In order to ensure that no cultural materials were missed, soils were excavated and screened into the subsoil to a depth of 30 centimetres in all of the excavated areas.

RESULTS

As was the case in 1997, artifacts were found throughout the B horizon. We were particularly careful to separate the two sections of the B horizon, with the hope that a separation could be made between the Princess Point and MOI components. This was successful, but only to a degree. It was clear that there was a tendency for the Princess Point artifacts to be deeper than the MOI materials, but it remained impossible to truly separate them.

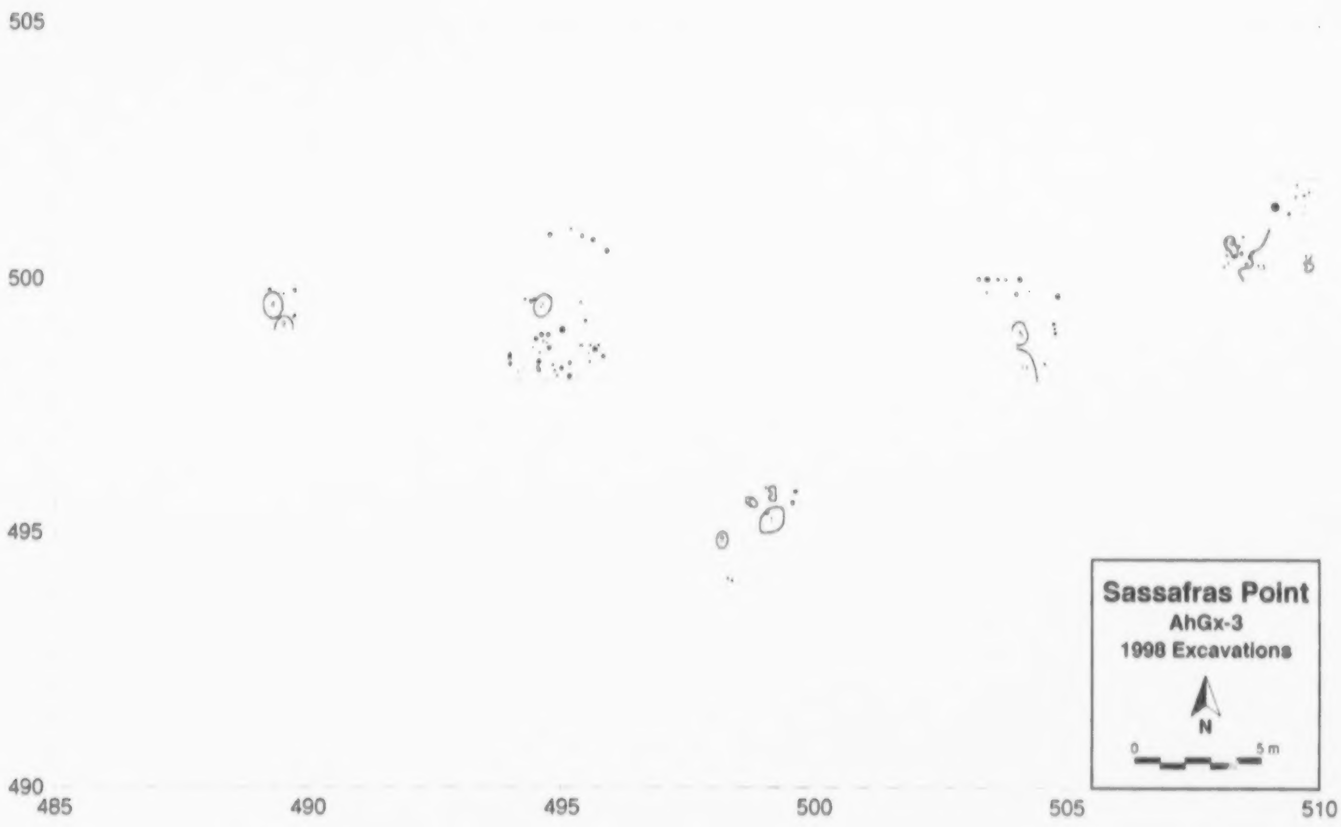
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Figure 2. Excavated Areas and Settlement Pattern at the Sassafras Point Site in 1998

A total of 94 post moulds were uncovered (Figure 2); each of these was sectioned to ensure that it was actually a post mould. In addition, 12 features were isolated and profiled (Figure 2). Unfortunately, no definitive pattern of structures can be recognized. In addition, all of the features were very shallow, basin-shaped depressions, none of which yielded any material distinctive of one component or the other, and none of which yielded any datable material.

In summary, we can make few more detailed determinations regarding age, site type, site function or site structure for either the Princess Point or MOI occupations at the Sassafras Point site than could be made in 1997 (Smith 1998:79-81). Given the nature of the multi-component deposits, it is doubtful whether further limited excavations, such as those conducted by a two-week field school, will reveal more useful information. It is possible that large-scale horizontal excavations in the Princess Point area of the site might uncover more distinctive patterns, and excavations in the central area of the promontory might yield single-component MOI deposits, but such investigation is beyond the resources and research objectives of the field school.

While the research results from the 1998 field season at Sassafras Point were somewhat disappointing, the pedagogical objectives were fully met. The field school students received instruction in excavation practices, data recording, flotation, mapping, and photography. In addition, the class attended weekly laboratory sessions, which were devoted to washing and cataloguing the artifacts excavated, throughout the fall term.

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EXCAVATIONS IN THE MILITARY ESTABLISHMENT AT PENETANGUISHENE: WILFRID LAURIER ARCHAEOLOGICAL FIELD SCHOOL AT DISCOVERY HARBOUR

JOHN R. TRIGGS

BACKGROUND TO THE 1998 SEASON

The 1998 field season at Discovery Harbour, formerly the Historic Naval and Military Establishments at Penetanguishene, was directed towards the investigation of several military and civilian structures occupied between 1828 and 1856. The project, conducted under the auspices of Wilfrid Laurier University in partnership with Huronia Historical Parks, represents a continuation of the archaeological field school in operation since 1991. This year ten students participated in the excavation under the supervision of Teaching Assistant, Doug Ross, and the author. Prior to 1998 all field school activity had taken place in the Naval Establishment (Figure 1), occupied between 1814 and 1828, located at the south end of the historical site (Triggs 1992; 1995; 1999). The immediate objective of the 1998 season was to locate buildings associated with the later military occupation and to conduct a preliminary assessment of the condition and location of these as determined by an analysis of contemporary historical maps. The secondary project objective was to assess the degree of disturbance to the Military Establishment occasioned as a result of the extensive and largely undocumented excavations carried out by Wilfrid Jury from 1952 to 1969.

EXCAVATIONS AT THE HISTORIC NAVAL AND MILITARY ESTABLISHMENTS 1952-1969

In his report *The Establishments at Penetanguishene: Bastion of the North 1814-1856* (Jury 1966) Wilfrid Jury describes several structures located during his two decades of excavation on the property. Unfortunately, the amount of documentation concerning this work is minimal and in some cases the remaining information consists of only a box of artifacts for each structure he excavated. Today these artifact collections are stored in the Children's Centre at Discovery Harbour and are accessible for study during the field school. Boxes are labelled with PE- prefixes followed by a number denoting a specific structure depicted on the plan of the site in the 1966 publication. Several military structures include the cookhouse, ash pit, Keating House, Widow Campbell's house, the soldiers' barracks, the log barracks, Officers' Quarters, the stables and the ash pit.

Although the 1966 base map serves as a

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starting point for locating sites of earlier excavations, a re-analysis of the artifact collections from several buildings suggests that Jury's identification of structures must be viewed with a certain degree of skepticism. In many cases, buildings which Jury attributed to the naval period, 1817-1834, contained artifact assemblages dating to the period 1860s-1900. Items such as ironstone, machine cut nails, and certain types of container glass indicated a Reformatory Period occupation (1858-1904) rather than the earlier naval period. Notwithstanding the numerous misidentifications of structures associated with the naval end of the site there is some reason to be more optimistic about Jury's identification of structures in the military end of the site. Several plans of the Military Establishments dating between ca.1830 and 1853 depict a fewer number of buildings and, more importantly, agreement on the location of many structures.

GRID AND PROVENIENCE SYSTEM

Prior to excavation in 1998 an analysis of several military period maps dating between 1848-1853 was carried out. Scales were calculated for each plan and coordinates plotted for the centres of over twenty structures. Coordinates for the structures were then transferred to a metric grid superimposed over Jury's 100' grid. The datum for Jury's grid, located at the southeast corner of the Officer's Quarters (see Figure 3), was re-established and a baseline was surveyed to the south as far as Keating House (Figure 2). All subsequent units were laid in according to distance south and west of the baseline.

A total of 12 units comprising 27.25 square metres were excavated in the military end of the site in 1998. A site plan (Figure 3) shows the location of general excavation areas referred to in the text: the stone cookhouse/privy, the cookhouse, and the domestic occupation at the south end of the site.

EXCAVATION AREAS:

Excavation units in the military end of the site were positioned for the purpose of locating three structures shown on several plans dating to the period 1848-1853: three units were positioned to investigate a stone cookhouse/privy located to the south of the former soldiers' barracks; three units were positioned at the west end of the soldiers' barracks to investigate a temporary cookhouse in that location; and in the south end of the Military Establishment six units were surveyed to investigate a group of structures which may have included a bakehouse, blacksmith shop, carpenter's shop, and at least two domestic structures with associated outbuildings.

THE STONE PRIVY/COOKHOUSE:

The area immediately to the south of the soldiers' barracks (Figure 3) was given high priority in 1998 for two reasons. First, a structure identified as a privy on an undated map was shown to be in the approximate location of another structure labelled as a cookhouse shown on several maps dated between 1848 and 1853. This apparent discrepancy was potentially interesting if indeed one structure had been constructed on top of an earlier building. If the documentary record were in fact reliable, then aspects of diet, health and hygiene could all be investigated in one 'foul' swoop. The second reason for investigating the cookhouse/privy was that this area had been investigated by Wilfrid Jury in 1952/3 although the precise location of his excavations is not known. Consequently, this represented an opportunity to evaluate the extent to which Wilfrid Jury's early excavations had impacted on the archaeological resources at the site.

By the end of the six week season the excavations had revealed the northwest corner of the building. Walls exposed in two units measure about 2 feet thick (60 cm) and stand about 3 courses in height (43 cm) with the base of the wall resting in a trench dug into the clay subsoil. The masonry wall is composed of mortared limestone slabs and small blocks. No floor deposits were found in association with the wall although a fill layer above the horizontal destruction interface contained post-1870s artifacts. Although the date of the destruction of the cookhouse is unknown at present, it is documented that the nearby soldiers' barracks was destroyed by fire in 1870 during its use by the Juvenile Reformatory (1858-1904). The stone barracks is pictured in several contemporary watercolours of the north end of the establishments (Figure 4).

Two sub-floor pits were found that may relate to the use of the building as both a cookhouse and a privy. As regards the former, a rectangular-shaped pit may be a food storage cellar although the fill within the pit was apparently related to the destruction of the building and not the use of the pit itself. Several large limestone slabs had clearly been dumped into the pit during the destruction of the building. In another area, a 70 centimetre deep, stepped pit was found. Based on the size, measuring at least 1 metre wide by over 1 metre long, this feature may represent a privy pit.

In two other units, evidence of disturbance by mechanical means was found in the form of trenching and destruction of the masonry wall described above. Two very large limestone slabs found in a secondary context, one nearly vertical in orientation, and the other inclined on an angle towards the bottom of the pit, suggested mechanical disturbance. This may have taken place as late as 1970 when a high-voltage hydro line was run from the electrical transformer (see Figure 3 and the small rectangular structure located immediately south of the privy/cookhouse) to the southeast corner of the Children's Centre. This trench, excavated after Wilfrid Jury had completed work at the establishments, was dug by backhoe and it seems reasonable to suspect that the wall foundation of the cookhouse was intersected during this work.

THE TEMPORARY COOKHOUSE:

Four excavation units were laid in at the west end of the former soldiers' barracks (Figure 3) to investigate a cookhouse that appears on a single undated map of the Military Establishment. This structure measured about 33' by 15' and was positioned so that the south wall of the building was aligned with the south wall of the soldiers' barracks and the Officers' Quarters. Units were positioned so as to intersect the east wall of the structure and to provide a stratigraphic cross-section of the area through the long axis of the building.

The results indicate that the degree of disturbance to archaeological features and deposits in this area is minimal. Underlying a thin layer of modern fill was a deposit containing a wide variety of 19th century artifacts. Material recovered from the deposit included a very large sample of artifacts dating from the early naval period up to the 1870s. This deposit was about 30 cm in thickness and was found overlying all units. Interestingly, the same deposit was found on the exterior of the privy/cookhouse described above indicating a very extensive fill episode.

The artifact assemblage associated with the cookhouse consisted mostly of ceramics, food bone and architectural debris (machine cut nails and window glass). At first glance the deposit is characteristic of a surface midden although the fact that the material is spread over such a wide area strongly suggests that the layer is a secondary fill deposit. The presence of a naval button together with several sherds of pearlware and a few wrought nails suggests that the fill may have been derived from the naval end of the site. Although a terminal date of deposition has yet to be determined, the presence of artifacts dating to the 1870s (several sherds of ironstone) suggests that the fill may have been deposited after the documented fire that destroyed the soldiers' barracks in 1870. The predominance of mid-century refined white earthenwares, however, serves to attribute the bulk of the artifacts to the military period when the barracks was occupied by military personnel between c.1835 and 1856. A single regimental uniform button with a 93rd regiment number dates to the period 1843-44 when a small detachment of 31 men from this regiment was stationed at Penetanguishene under the command of Lt. A.S. Leith-Hay.

Below the fill layer a deposit containing structural features: namely, sleeper trenches, posts and a mortared stone foundation, were uncovered in three excavation units. Evidence of a single sleeper trench running east-west intersected by three perpendicular sleepers indicate the presence of a wooden floor in this area. Two post moulds may indicate that the floor or sill of the

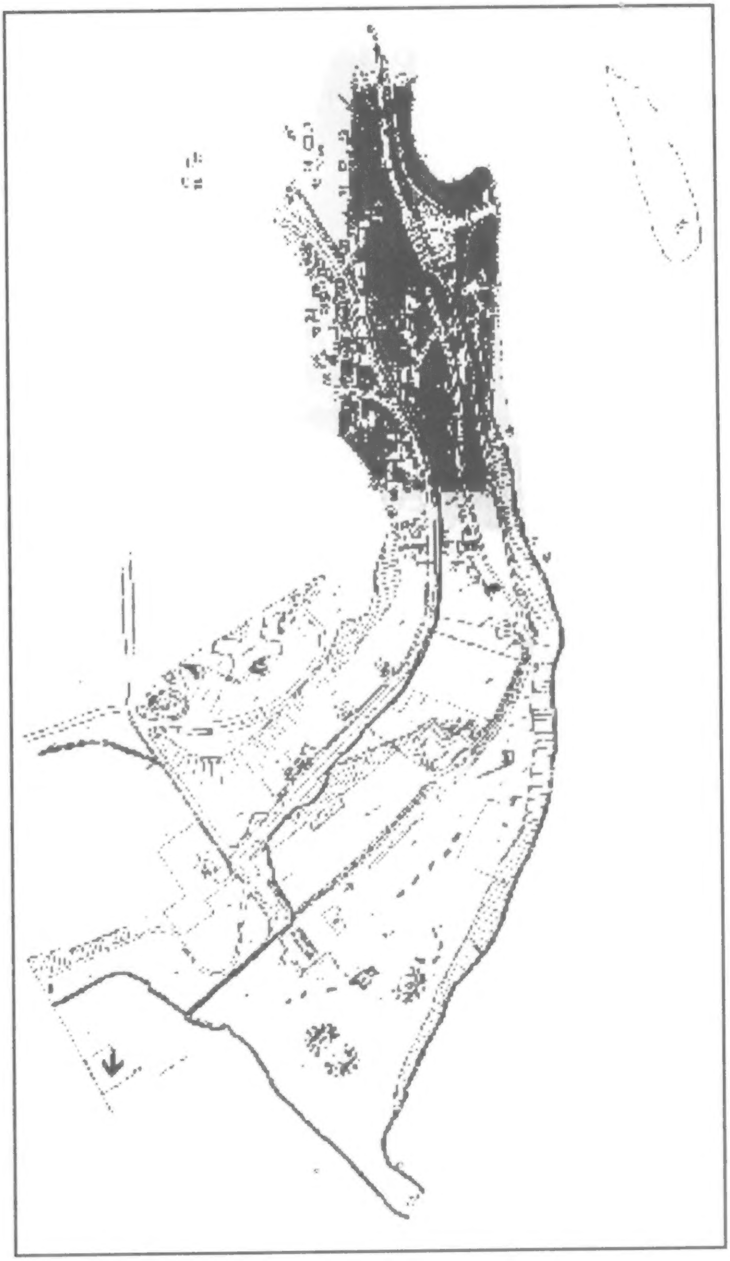

FIGURE 1. Plan of the Naval and Military Establishments at Penetanguishene. The Naval occupation is confined to the south end of the site (right). Excavations in 1998 centred on the military

building rested upon this type of support. Perhaps the most intriguing structural feature was a mortared platform. This feature was found to measure at least 1.5 x 0.95 metres in plan and stood 40 cm high. At present the speculation is that the remains are from a fireplace foundation although no evidence of a hearth was uncovered.

DOMESTIC STRUCTURES/ OUTBUILDINGS AT SOUTH END OF SITE

Three separate locations were investigated at the south end of the Military Establishment after examining aerial photographs and conducting a pedestrian survey. Excavation in the first two locations during 1998 built on previous archaeological survey in this general area conducted by Burke Penny in 1973/4. In his report Penny noted that two structures were found, one of which was the widow Campbell's house ('Outbuilding', Figure 3) and the other was an unidentified structure (see 'Domestic Structure?', Figure 3). It is known that the Campbell residence belonged to a Mr. Laughlin Campbell, a pensioned soldier who died in 1848. Widow Campbell's name appears on several plans of the Military Establishment after this date until 1858. Penny did not excavate in the area of the presumed widow Campbell's residence since it was assumed that the residence had been excavated by Wilfrid Jury (date unknown). A third area was investigated in 1998 near the shoreline where construction debris suggested the location of yet another structure.

Apart from the historical records which suggest that these buildings were occupied by pensioned soldiers and their families beginning in the 1840s and ending in 1856 when the Military Establishment closed, virtually nothing is known archaeologically of this period of occupation. As many as twenty buildings may have been allotted to the pensioned soldiers during this period with the understanding that the government could expropriate the land at any time. For this reason any construction in the old military reserve was to be of a semi-permanent nature. Artifacts recovered by Jury and identified as widow Campbell's residence, have yet to be analysed in detail although preliminary observations indicate a wide variety of materials, particularly ceramics, dating from the mid-decades of the 19^{th} century.

In 1998 several interesting features were uncovered. First, in the most southern location ('Outbuilding', Figure 3) a layer of fill covering the entire area contained a variety of mid-19th century artifacts. Below this fill a sandy deposit with plough scars was revealed. Plough scars were found in all units and were oriented in a roughly east-west direction running at a slight angle to the units. Root crops were indicated by the presence of dozens of small circular moulds measuring less than a centimetre in diameter found throughout all three units. Both gardening and ploughing may be indicative of the Reformatory period when the open field was planted and cultivated using a horse-drawn plough.

Below the plough scars and on the surface of subsoil three shallow circular stains (35 centimetres in diameter) spaced about 1 metre apart suggested a vertical post type of construction. The presence of charcoal in all three posts further indicated that the building may have been destroyed by fire. The identification of the structure remains somewhat of a mystery although one possibility is that the features may be related to a long extension on the north side of the widow Campbell's house (see Figure 3; 'Outbuilding'). This appears on two maps, one undated and the other dated 1858. The later plan shows the long extension subdivided into smaller rooms within the same structure, possibly representing domestic offices, for example, a dairy or kitchen, and perhaps more utilitarian rooms such as a wood shed and stables.

Evidence of another structure was found during a pedestrian survey of the Penetanguishene littoral where a concentration of plaster indicated the presence of a building. Upon excavation it became clear that the plaster was related to the destruction of a 19th century building. Paint samples visible on the plaster included mustard yellow, slate blue and ochre red. The first indication of a structural feature was a wooden box drain located about 1.2 metres below the ground surface at the extreme south end of the unit. This

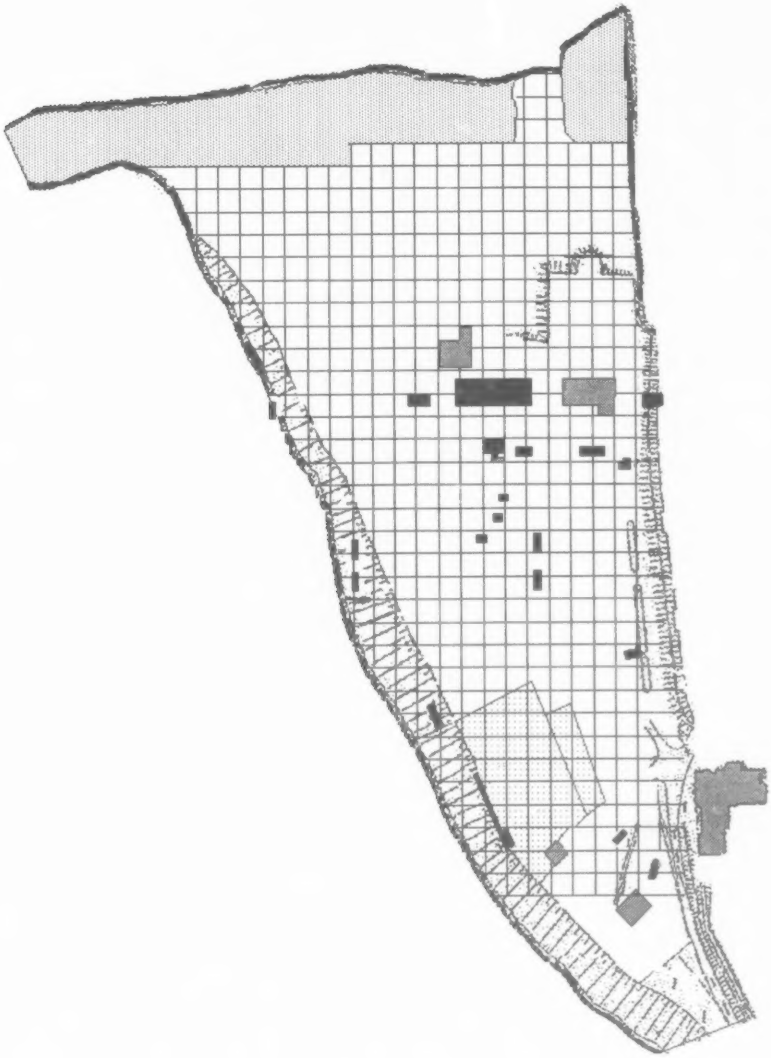

FIGURE 2. Plan of the Military Establishments at Penetanguishene showing the grid system superimposed over the site from Keating house at the bottom (shaded building) to the shoreline at the top of the plan. Solid colour indicates the presumed location of structures based on an analysis of several contemporary plans. Shaded colours indicate existing structures or features. Scale: 1 grid square = 10 metres.

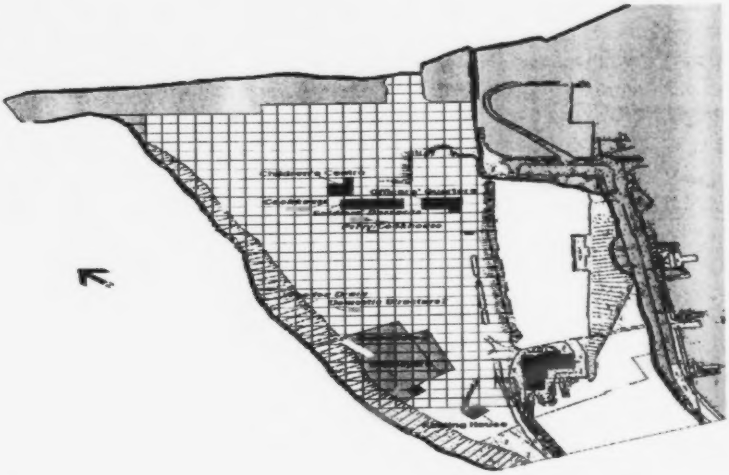

FIGURE 3. Plan showing location of excavation areas (italics) and presumed location of structures identified during the 1998 field season. Existing structures and features are not italicised. Scale: 1 grid square = 10 metres.

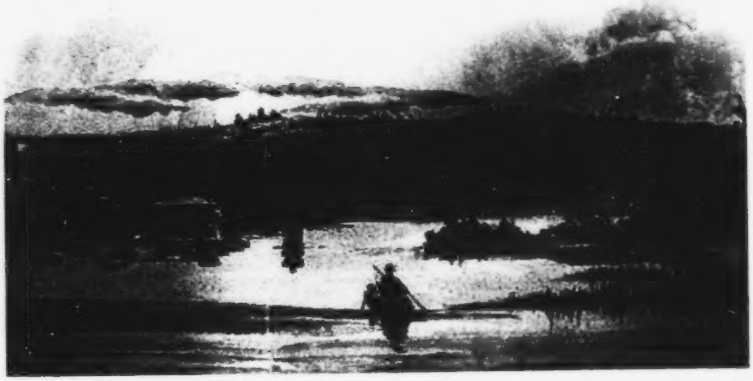

FIGURE 4. Watercolour (ca. 1836) by George Dartnell showing the entrance to Penetanguishene harbour. The stone soldiers' barracks is visible on the left. The stone Officers' Quarters (far left) is partially obscured behind the rise in the land. The stone cookhouse and privies were located on the far side of the stone barracks. ROM 952.87.5

measured about 15 cm in width, had vertical sides raised about 10 cm above the floor of the drain which was itself composed of a single plank. No cover was found associated with the drain. Additional structural features uncovered included several timber fragments and stains running parallel to the box drain. The presence of water-borne sediment throughout the stratigraphic sequence, particularly in the lower layers suggests that the unit may have been inundated periodically by rising lake levels.

Another 1 x 2 metre unit was positioned according to information from both the aerial photographs and the historic plans. Reconnaissance of the area indicated a slightly raised terrace suggesting the location of a building. Of interest was the discovery of a mixed fill layer found overlying several floor board stains which were in turn overlying subsoil. The fill can be dated to the middle decades of the 19th century based on the ceramics recovered but two artifacts, a piece of scrap copper and a trade silver earring, seemed strangely out of context for a domestic dwelling.

SUMMARY

Excavations at the Military Establishment during the 1998 season revealed evidence of at least four structures and associated features dating between 1828 and 1856. An evaluation of the degree of disturbance to the site caused by previous archaeological work conducted by Wilfrid Jury suggests that large sections of the site remain intact despite extensive exploratory trenching in the 1950s and 1960s. Although the stone cookhouse/privy was found to be disturbed, artifacts and features indicate that some information is still recoverable. The temporary cookhouse at the west end of the stone soldiers' barracks appears to be completely undisturbed and warrants further investigation at a later date. At the south end of the Military Establishment evidence of at least two domestic structures and a wooden drain indicate that more work needs to be carried out to investigate the 'pensioner' component at the Establishments.

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SITE/PROJECT SPECIFIC ACTIVITIES

EXCAVATION OF THE ARBOR RIDGE SITE (BBGD-10) KINGSTON, ONTARIO

NICK ADAMS
ADAMS HERITAGE CONSULTANTS

In 1998, Adams Heritage Consultants undertook archaeological mitigation excavations (Stage 4) on behalf of Brothlin Enterprises Inc. at the Arbor Ridge Site (BbGd-10), a small Iroquoian settlement dating to the Middle/ Early Late Ontario Iroquoian phase (*ca.* A.D 1400-1450) of the Late Woodland period. The site occupies the edge of the ridge overlooking Little Cataraqui Creek within the City of Kingston. A total area of 1575 square metres of the site was excavated under the field direction of Nick Adams. Of these, 234 square metres were found to consist of undisturbed midden deposits which were excavated entirely by hand. The remaining 1341 square metres were excavated using mechanical equipment to remove the plough zone, then all cultural features were examined and excavated by hand.

Initially the Arbor Ridge Site was thought to be restricted to a relatively narrow strip of land parallel to the edge of the Little Cataraqui Creek Valley. Plowing of the lands adjacent to the areas of initial discovery, and the subsequent ploughsoil stripping of a series of transects using mechanical equipment, suggested that the site was limited in size, and focussed into two small areas between a small quarry and the current end of Arbour Crescent. However, once a much wider area had been exposed, it proved possible to determine the presence of ephemeral sub-surface features within the area which had been 'written off' as a result of the Stage 3 testing.

Preliminary interpretations suggested that the site dated to the late portion of the Middle Ontario Iroquoian period. Subsequent discussions with other knowledgeable Iroquoianists suggest that a slightly later date - possibly the early to mid 15th century - would be a more accurate temporal placement. Three samples of soil matrix from good contexts were sent for OCR (oxidizable carbon ratio) dating, returning two acceptable dates of 515 +/- 15 (AD 1435 +/-) and 500 +/- 14 YBP (AD 1450 +/-). Mechanical stripping around the periphery of the site did not result in the identification of a palisade or other defensive outworks, however, the presence of at least one longhouse on the terrace above the valley edge was clearly established. On this basis, and in the light of new information from the Stage 4 excavations, the site is now interpreted as a small, summer village or hamlet. The artifacts and site layout suggest a single component, intensive (rather than extensive) seasonal occupation, focussed on the acquisition of foods from the adjacent river valley. The limited number of sub-surface features within the longhouses suggests that these structures were not

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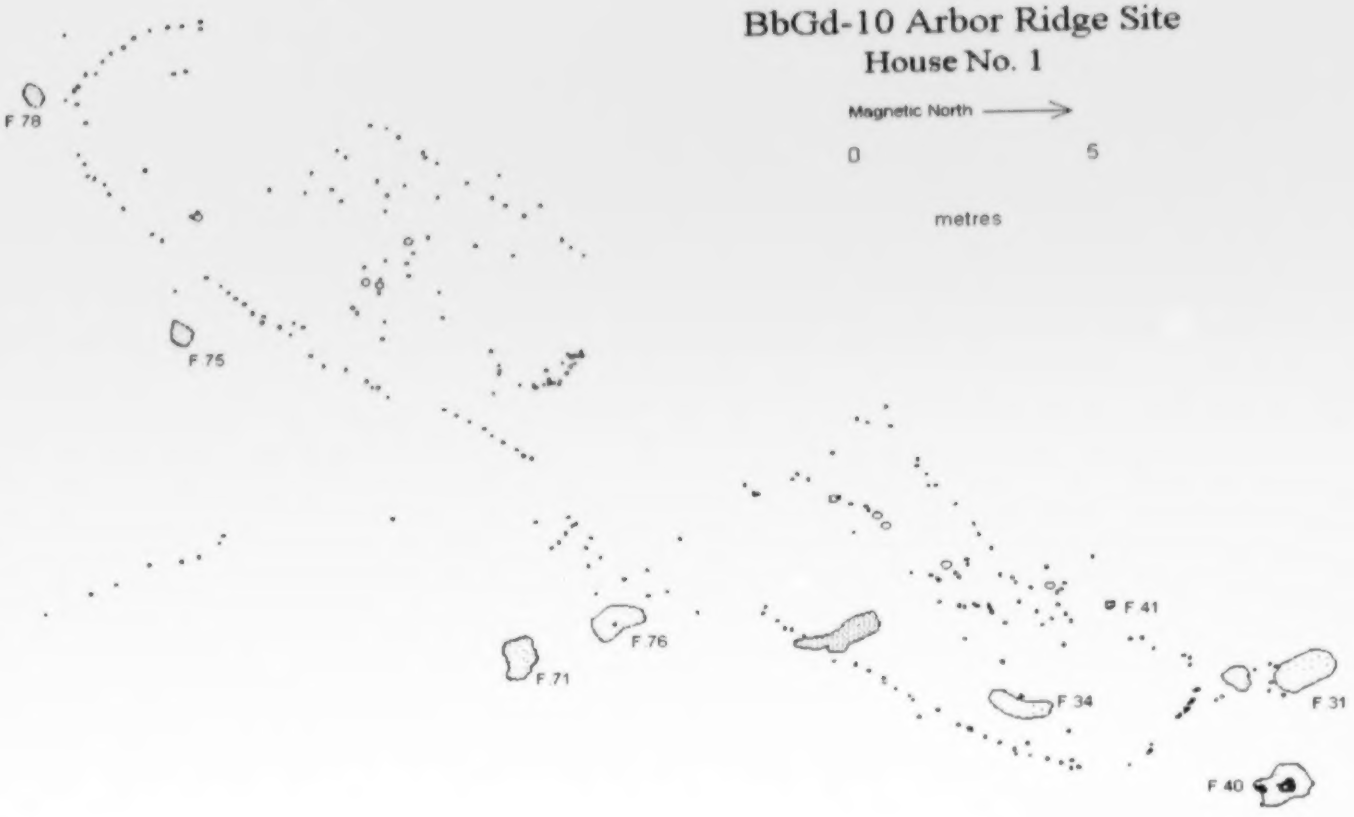
5 Main Street
Newboro, ON
K0G 1P0


BbGd-10 Arbor Ridge Site
House No. 1
Magnetic North
0
5
metres
F 78
F 75
F 76
F 71
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F 31
F 40

FIGURE 1. House No. 1, Arbor Ridge Site

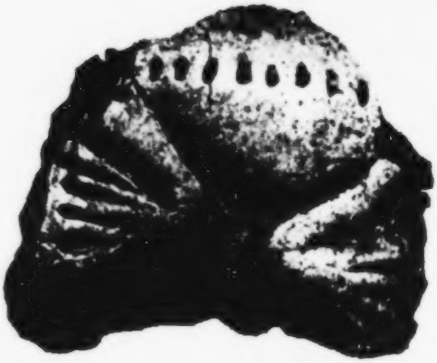

FIGURE 2. Tree Frog Effigy, Part of Pipe Bowl

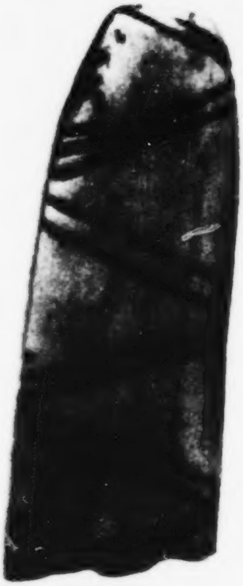

FIGURE 3. Decorated Bone Object

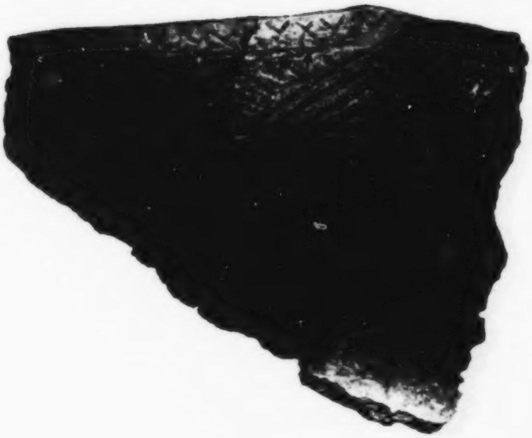

FIGURE 4. Section of Castellated Vessel

intensively used, and that much of the life of the settlement took place outside at the edge of the valley.

The single complete longhouse excavated was 35.0 metres long, and 6.6 metres wide and is oriented approximately NE-SW (with reference to magnetic north) or almost E-W with reference to grid north. The periphery of the house is composed of approximately 100 postholes, spaced at approximately 35 centimetres from the adjacent postholes. On average these postholes were 15.8 centimetres in diameter (n=327). A number of discontinuous lines of post holes are associated with this structure. It is not possible to determine whether these represent additional longhouse alignments, are evidence of re-building, or are associated with external features such as drying racks, wind breaks etc.

At this stage of the analysis, it appears as though the majority of site activity occurred on a level terrace of limestone at the valley edge, at the end of the longhouse.

A large assemblage of pottery was recovered from the midden, and although analysis is not complete, Ontario Horizontal, Middleport Oblique, Lawson Incised and Middleport Criss-cross types are well represented. Interesting, a substantial number of 'juvenile' pots and clay wastage were also recovered, suggesting that pottery manufacture may have been occurring on the site. Pipes and pipe fragments were also common.

MILITARY SITES ARCHAEOLOGY, PARKS CANADA, ONTARIO SERVICE CENTRE

JOSEPH LAST

In 1998, Military Sites archaeologists from Parks Canada, Ontario Service Centre, undertook excavations at several military-related sites within the province. While the scope of the investigations varied, each shared common goals. The primary aims of the investigations were to assess and to mitigate potential impacts on cultural resources resulting from stabilization programmes and new site initiatives. Research strategies were project-specific, ranging from intensive hand excavation to monitoring during construction. The projects involved examining the foundations of the Murney Tower in Kingston; redefining the northeast bastion at Fort Malden, Amherstburg; determining the integrity of the powder magazine wing-walls at Fort Mississauga, Niagara-on-the-Lake, (Stephen Mills this volume); and investigating a well on the Commons at Fort George, Niagara-on-the-Lake. Excavations at the Murney Tower, Fort Mississauga and Fort Malden advanced our knowledge of construction detail and the complex stratigraphic sequences associated with site occupation and usage. The investigations at the Commons augmented our understanding of localized cultural resources while ensuring their longevity. By increasing our knowledge and appreciation of the historic resources within the respective study areas, the projects permitted us to provide informed recommendations to Site Managers. They also contributed to our ongoing strategy for resource preservation and presentation.

Department of Canadian Heritage
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MURNEY TOWER NATIONAL HISTORIC SITE, KINGSTON

Permit Holder: Joseph Last [Parks Canada, OR Permit 98-0008H]

INTRODUCTION

Recent engineering assessments of the Murney Tower revealed that the 150-year-old structure required stabilization and repair. While much of the work focussed on above-grade repointing of the walls, recommendations also proposed extensive repairs to the foundations of the structure. This, along with the prerequisite construction access routes, prompted the need for archaeological intervention before, and during, the stabilization programme.

The primary purpose of the project was to assess and mitigate the impact of the proposed stabilization by archeological testing and monitoring. The aims of the investigations were threefold: to obtain information about the nature and integrity of the cultural resources that lay within the ditch and along the crest of the south glacis; to evaluate their significance; and to establish a mitigative strategy for the construction phase of the project.

SITE HISTORY:

The Murney Tower (Figure 1) was the first of the four Martellos built at Kingston. The Board of Ordnance awarded the contract for its construction to George Davidson on the January 27, 1846 (Lavell and Preston 1963). By November 30, it was completely fitted but without ordnance. In 1850, two 32-pounder carronades and one 32-pounder gun were placed within the tower. However, lacking an appropriate carriage, the 32-pounder gun remained unmounted until 1862 (Saunders 1976).

Save for its distinctive caponnières, the Murney Tower possesses many of the classic design elements associated with Martellos worldwide (Sutcliff 1972). It is a two-storey masonry structure, supporting a terreplein, or firing platform, capped by a protective parapet. Fashioned from locally quarried limestone (Moorehead 1987), it rises to the height of 10.9 metres above the ditch floor. At its base, the structure measures 17.06 metres, tapering slightly to the crest of the parapet. The first floor compartments included stores, a cistern, and a powder magazine. Bombproof barracks, for men and an officer, occupied the second floor of the structure. Similar to other Martellos, a prominent central pillar, 1.82 metres in diameter, carried the weight of the barrack and gun floors. A single door on the barrack floor is the only entrance to the tower. Although initially serviced by a movable ladder, the Board of Ordnance later installed a more convenient drawbridge to facilitate access.

STUDY AREA:

In total, fourteen excavation units of varying sizes were opened about the base of the tower. They focussed on the foundations of each caponnière, as well the four salient angles of the tower walls (Figure 2). Concentrating on the north, east, and west faces of the structure, the excavations uncovered approximately 30 percent of the tower foundations while exposing 46.6 square metres of the ditch floor. The investigations also examined areas below the window and door openings in hopes of detecting refuse deposits. In addition, the survey included thirteen 0.40 metre-square test units equidistantly spaced along the crest of the south glacis. All units were hand excavated and screened to maximize artifact recovery.

RESEARCH FINDINGS:

The combined stratigraphic and material culture analyses (Plousos 1999) of the twenty-seven excavation units reveal four major occupation phases for the Murney Tower. They are, in sequential order: the 1846 tower construction; the Royal Canadian Rifle Regiment occupation: 1848 to 1870; the post-1886 Canadian Militia period; and the post military and Museum period, 1890 to present.

PHASE I: THE 1846 CONSTRUCTION OF THE MURNEY TOWER

In 1846, Lieutenant-Colonel William Holloway, Commanding Royal Engineer in Canada, prepared the necessary recommendations for the defence of Kingston. His plan included the erection of a tower at Murney Point to guard the western approach to the city. To shelter the tower from naval bombardment, the structure was masked by the construction of a ditch and protective glacis. Archaeological investigations reveal this to have been an arduous task. After the removal of the sod and subsoil, Holloway had more than 1.3 metres of the limestone bedrock mined to accommodate the tower and its defensive ditch. All that remains from this activity is a series of drill holes dispersed about the ditch floor. While artifacts relating to this construction phase were sparse, excavations did recover one of the iron jumper bits used during the drilling operation.

Besides mining the ditch, Holloway authorized the modification to its drainage system. Change orders to the original specifications note that Davison cut a channel into the ditch floor

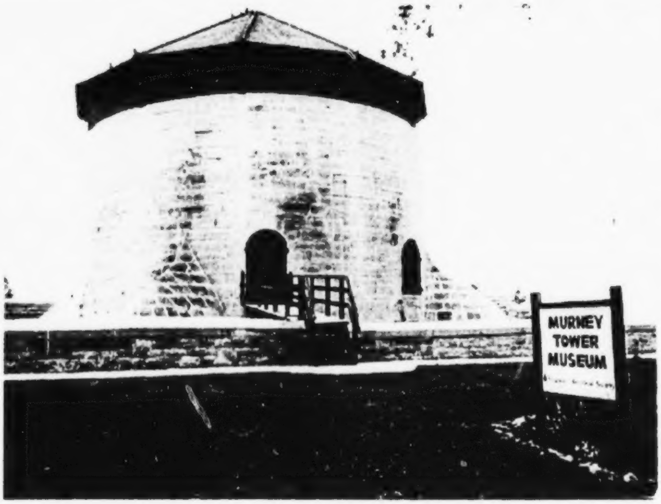

FIGURE 1.
Landward side of the Murney Tower facing south. Photo by J. Last. Parks Canada, Ontario Service Centre [Cornwall]. Photo no. 122H-157m.

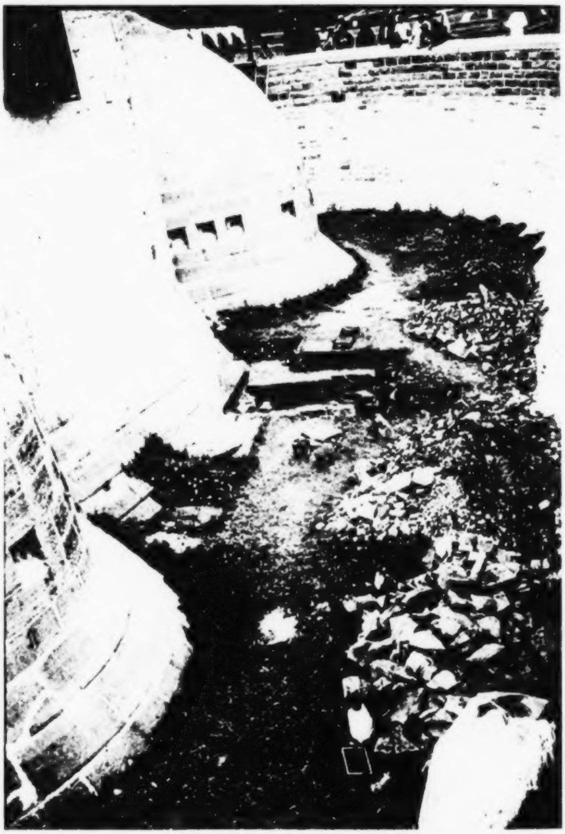

FIGURE 2.
View facing north along east side of ditch showing excavation units 122H2F, 122H2G, 122H2H and 122H2K. Photo by J. Last. Parks Canada, Ontario Service Centre [Cornwall]. Photo no. 122H-205T.

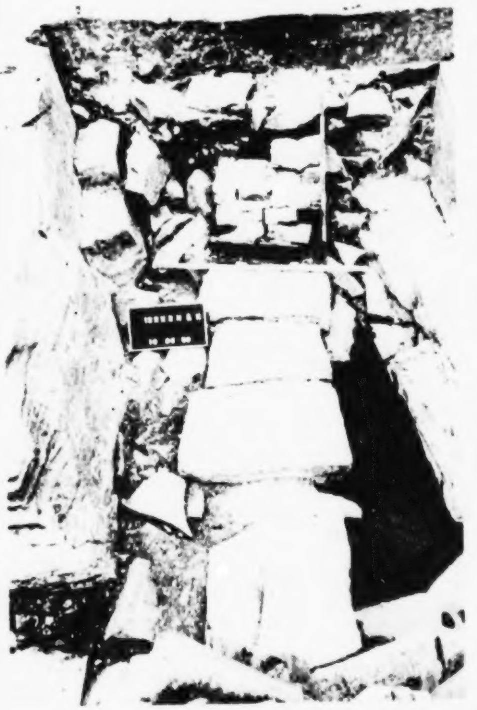

FIGURE 3. View of drain servicing barracks sink, looking west. Photo by S. Mills. Parks Canada, Ontario Service Centre [Cornwall]. Photo no. 122H-124m.

(Queens University Archives 1846). Our investigations uncovered a 0.87 metre-deep drain around the east, south, and west sides of the tower. Through a series of catch basins and grates, it carried 'grey' water from the barracks floor sink (Figure 3). It also diverted surface water to an outlet at the southwest corner of the ditch. Holloway employed the surplus stone, derived from the ditch and associated drain excavations, to construct the glacis. Once completed, the south ditch rose to the height of 6.7 metres, approximately two-thirds that of the tower.

Along with the defensive ditch, Holloway incorporated four ditch caponnières into his design. However, his superiors questioned whether the caponnières might jeopardize the integrity of the tower. Archaeological investigations revealed how he solved this potential problem. By sinking the caponnières below that of the tower foundations, Holloway effectively added counterthrust to the building. In so doing, each caponnière acted as a supporting buttress that enhanced, rather than compromised, the strength of the tower.

PHASE II: THE ROYAL CANADIAN RIFLE REGIMENT OCCUPATION - 1848 TO 1870

From 1848 until 1870, the Royal Canadian Rifle Regiment [RCRR] garrisoned the Murney Tower. Raised with the specific aim of combatting the endemic problem of desertion, the Regiment was composed of veterans having fifteen years service and of good character. Unique to the RCRRs, was the number of wives allowed to receive rations. Rather than the normal six women per 100 men, the ratio was doubled to twelve (Public Archives of Canada 1841). In addition, wives and children already 'on the strength' from previous regiments maintained this privilege, regardless of the quota. In 1851 the regiment had 840 rank and file, supporting 442 women and 839 children under the age of fourteen (Couture 1988). Their seasoned experience, age, and overwhelming numbers of wives and children gave a decidedly domestic flavour to the Regiment and to the barracks setting.

While the number barracked at the Murney fluctuated over time, multiple families commonly inhabited the structure. Records for 1856 indicate that six families lived within the tower. Using the Regimental statistics for the period, an estimated twenty-two individuals occupied the barracks room. This would have allowed each person a living area equal to that of two trestle beds.

The living quarters were also used for the preparation and consumption of food. A cooking range with two boilers served the garrison, as did a cistern-fed hand pump. If the ceramic assemblage recovered from the ditch is any indication, the garrison used a variety of decorated wares. At meal time, the barracks tables displayed a bouquet of multicolored place settings. Investigations recovered edged and transfer printed plates along with an assortment of banded, slipped, and sponged decorated hollow wares. An assortment of military items was also present within the assemblage. A bayonet scabbard tip, stamped primer caps, and spent Brunswick Rifle balls (characteristic of the RCRRs) were but some of the military artifacts recovered.

Although ashes and sweepings were to be discarded in designated places other than the privy or the drains (Great Britain, War Office 1861), infractions apparently occurred. During our investigations, we found the ditch drain filled with barracks sweepings and kitchen scraps. Deposits of ash and clinkers were also found broadcast throughout the ditch, and especially by the tower entrance.

PHASE III: THE POST-1886 CANADIAN MILITIA PERIOD

On 22 June 1870, Kingston was struck from the list of Imperial stations. As a result, the Board of Ordnance officially turned over the tower to the Canadian Department of Militia. From then until 1886, only single families of the School of Gunnery occupied the tower. While documentation during this period is limited, one event of note is recorded. In 1882 a baby girl was born in the Murney to Sergeant Thomas Pugh and his wife. Her parents named her Murney May in honour of the month and the tower home in which she was born (Moorehead 1987).

Artifact assemblages from this phase show a further easing of regulations, especially regarding the use of the ditch as a refuse receptacle. Among the items recovered were a variety of ceramic storage and cooking vessels in coarse red earthenware, stonewares and popular yellow wares. Tablewares in sponged, polychrome, transfer printed and moulded designs were present. Vitrified wares, both plain and moulded, were also found strewn about the ditch. Other domestic artifacts include flower pots, toiletry items (patent medicine bottles, mirrors, and combs), wearing apparel (buttons and jewellery), and children's toys (marbles, porcelain dolls and a mouth harp). Military items associated with the Canadian Militia include ordnance (grape shot, percussion caps, and a friction tube), insignia (Battery 'A' cap badge), and uniform furniture (belt hook).

PHASE IV: THE POST MILITARY AND MUSEUM PERIOD - 1890 TO PRESENT

Long before the military abandonment of the Murney Tower, it had become the centre piece around which the Kingston Community gathered for recreation and sport. In 1853, work began on the park to the northeast of the tower. Over the ensuing years, the park committee planted trees and developed drives and walks about its fifteen acre grounds. With this development the Murney became fully integrated into Kingston's urban landscape. To the community, the tower was more than curious remains of masonry and craftsmanship. Like a fountain within a designed garden, the Murney stood prominently, a symbol of Kingston's past military might, its strategic setting, and political importance. As such, it along with the other Martellos, are embodied today as a stylized charge on the Kingston Coat of Arms.

Domestic artifacts from this period understandably decline. However, items associated with building maintenance and repairs, especially to the tower windows, are apparent. The uses of arc lighting, as evidenced by many carbon rods, suggest an adaption to new means of illuminating the tower and the surrounding park.

In 1925 the Kingston Historical Society leased the tower as a museum. Pen nibs, pencils and push pins are the tangible material remains of the Museum's activities. Another striking element of this phase of the tower's history is the number of coins broadcast about the ditch. Excavations have uncovered more than 200 coins, most of which date to the Second World War. Presumed 'tokens of luck', they represent gestures of hope. Flipped by thumbs of anxious service men to gain assurance or by starry-eyed couples to punctuate a wish, or to seal a dream. A variety of children's toys from this and more recent periods are also represented, demonstrating the ongoing presence of children at the Murney.

The most extraordinary component of the assemblage is the overwhelming quantity of 20th century pop bottle glass. Equalling three-quarters of the artifacts found, the glass remains an interpretive enigma. Are the broken bottles merely the result of idle hands enjoying the outcome of glass on stone? Or do they represent expressions of frustration and anger against constraint, tradition, and the status quo?

CONCLUSIONS:

The investigations allowed for an accurate assessment of the potential impacts to the archaeological resources and thus provided a mitigative strategy during the construction phase of the project. Second, archaeological testing next to the foundation provided information about construction methods used in the creation of the ditch and its subsequent filling episodes. Additionally, testing below the window and door apertures of the structure, encountered midden deposits associated with the habitation of the tower. Such deposits advanced our understanding of the post-1846 occupation activities. They also benefit future comparative analyses with other sites where the Royal Canadian Regiment was stationed (Last 1996).

FORT MALDEN NATIONAL HISTORIC SITE, AMHERSTBURG

Permit Holder: Joseph Last [Parks Canada, OR Permit 98-0014H]

INTRODUCTION:

Early in July 1998, archaeologists from the Ontario Service Centre (Cornwall), undertook a one-week investigation at Fort Malden National Historic Site. The project goal was to aid site personnel in redefining the northeast bastion and ditch. Archaeological investigations accomplished this by determining the original form and elevations of these defensive features and by mitigating construction activities during their remodelling.

THE HISTORY OF THE NORTH-EAST BASTION:

During their occupation of Fort Malden, the Americans established a new, but smaller work. Using the southwest bastion as the 'anchor bastion', they decreased the length of the south, west, and north curtain walls by approximately 15.44 metres (Carter-Edwards 1980). By December 1814, American forces had refurbished the southwest bastion and had raised three new flanking bastions at the corners of the reconfigured fort.

A loopholed palisade, built along the curtain walls, further enclosed the work. In all likelihood, the northeast bastion also had fraising similar to that of its southwest counterpart. Captain Charles Gratoit, an Army Corps Engineer, oversaw the planking of the northeast bastion. While plans depict the bastion with a compliment of four embrasures, accounts dating to the British reoccupation of the site state that their construction was incomplete (Carter-Edwards 1980).

Upon their return in 1815, the British made few immediate alterations to Fort Malden. Only after 1838/40 were substantive modifications carried out. These included the widening and deepening of the ditch and the construction of a new palisade line within the ditch. Both the materials used in the erection of the palisade and its method of joinery are well documented (Carter-Edwards 1980).

Little additional work was done on, or around, the bastion during the ensuing years of the Royal Canadian Rifle Regiment's posting at Fort Malden. Despite requests from Lieutenant-Colonel Holloway, Commanding Royal Engineer, to attend to the aging bastion, attention focussed more on barracking and stores than defensive upgrades or repair.

PAST ARCHAEOLOGICAL INVESTIGATIONS:

Two excavations are relevant to the present study of the northeast bastion. In 1978, Peter Lane (1980) excavated two trenches along the north curtain wall and one within the north ditch. A year later, during a Parks Canada field school, he oversaw the testing of three additional trenches. They ran through the north curtain wall and along the west face and flank of the northeast bastion. Lane's findings included a palisade line attributed to the American modification of the site in 1814 and evidence of the first fort occupation.

The excavations also uncovered the remains of the British palisade post placed within the ditch proper (Figure 4). Similar to the anchor posts depicted in Gother Mann's section of the fort palisade, it consisted of a dowelled 'T' brace deadman with a single angle brace (Figure 5). Analysis reveals the wood to be white oak. Unfortunately, the homogeneous nature of the ditch deposits hampered observations regarding the exact form of the scarp or counter scarp face of the northeast bastion. The footing trench for the palisade was also similarly evasive, apparently for the same reason.

THE 1998 STUDY AREA:

The study area consisted of reopening one of the 1979 excavation units, with the addition of a parallel, eastern extension. Running a distance of 12.20 metres north-south, it provided a section through the ditch and scarp face of the bastion (Figure 6). The trench also allowed for the cross-tabulation of findings from previous excavations, thus allowing us to build upon previous archaeological endeavours without affecting additional archeological resources.

METHOD OF EXCAVATION:

A back hoe excavated the trench down to a depth of 3.05 metres below grade, stepping each end of the trench to shallower depths. The height of the trench at its extremities averaged 1.35 metres below present surface. After cutting the trench, we cleaned the north, east, and south walls, as well as the trench floor, with shovel and trowel. Only artifacts found imbedded within the profile were saved and bagged.

1998 STRATIGRAPHIC SEQUENCE:

The 1998 investigations of the northeast bastion encountered thirty discrete strata. Together they chronicle the history of the bastion and represent five temporal phases. They are, in sequential order: the pre-occupation deposits, the American occupation [1813-1815], the British occupation, reconstruction and repair [1815-1859], the post military and historic site period [1859-1979], and the recent historic site period [1979-1998].

INTERPRETATION AND PHASING:

PHASE I: NATURALLY OCCURRING SOILS [PRE-OCCUPATION]:

Excavations encountered the earliest, naturally occurring deposits at the lowest elevations of the ditch. They consist of a very dense and compacted 'C' Horizon clay. While uniform in colour, this tenacious clay layer had a 'marbleized' appearance resulting from water percolation. Isolated pockets of 'veining' and 'rust stains', caused from leaching, were also evident.

PHASE II: THE AMERICAN OCCUPATION [1813-1815]:

The identification of American deposits within the ditch is tentative at best and based solely on stratigraphic superposition. While the Americans threw up the bastion in 1814, subsequent modifications by the British left little of the American ditch intact.

Remains of the American scarp face of the northeast bastion are limited to one buried sod surface and a clay deposit. The present scarp slope measures 37° and, while erosion has occurred, mirrors roughly the present angle of the bastion

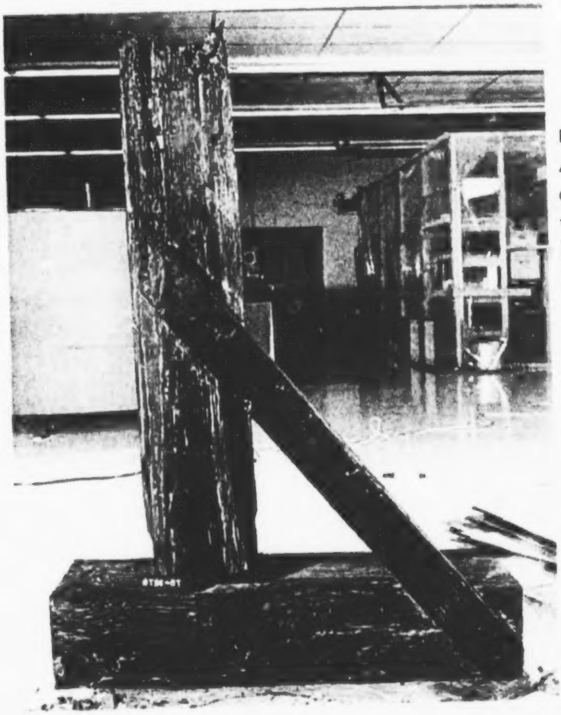

FIGURE 4. Anchor support post recovered from excavation unit 4H9A prior to conservation treatment. Photo by T. Daly. Parks Canada, Ontario Service Centre [Cornwall].

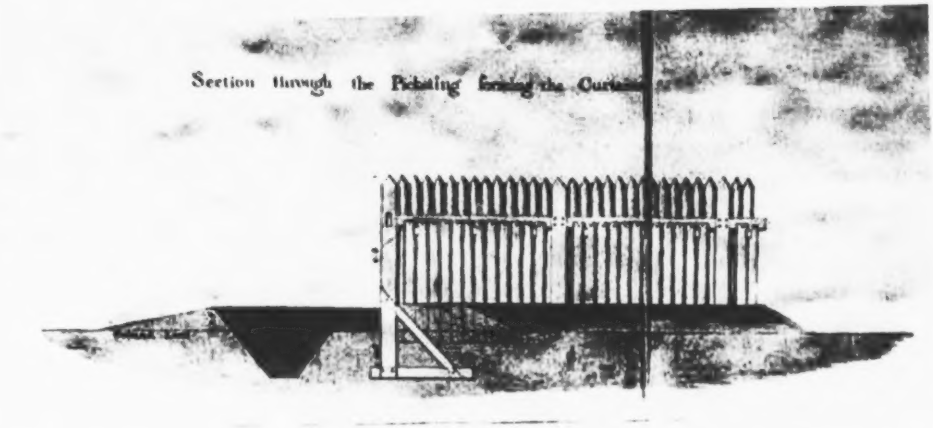
Section through the Picketing forming the Curtain

FIGURE 5. Portion of Gother Mann's section of the works and defence at Amherstburg. Note the anchor detail employed. [PAC National Map Collection, H1/400-Amherstburg-1800].

face. Excavations identified three other deposits forming the bastion proper. Two are composed of silty-clay matrices, highly mottled with organic and oxidized staining. The presence of oxidized soil appears to represent an *in situ* burn. Elevations of the layers are well below that of the original 1796 parade inferring that they represent something other than a pre-War of 1812 parade occupation. Although undocumented, the deposits may represent a floor of an earlier British semi-subterranean building; an American casemate; or backfill from an American fraising trench.

PHASE III: THE BRITISH OCCUPATION, RECONSTRUCTION AND REPAIR [1815-1859]:

Lying upon the earliest scarp face is a thin deposit of pure grey clay. Believed to result from the installation of the ditch palisade, it represents the first tangible deposit attributed to the British remodelling of Fort Malden in 1838/40. An additional layer of soil, composed of clay and sod inclusions formed the scarp face of the bastion. Its slope measured 38°. We presume it to represent the reconfigured face of the bastion. Subsequently, the ditch was filled with a 0.82 metre-thick deposit of mottled clay. 'Floating' horizons of sod and pebbles infer that this layer developed over a time and may represent erosion of the bastion. Documents dating to 1846 describe the bastion in poor condition and need of repair (Carter-Edwards 1980). Since the fill appears uniform throughout, its deposition may postdate the removal or collapse of the palisade.

Investigations also uncovered the remains of a palisade post (Figure 7). While not yet analysed, it appears to be cedar. In all likelihood, it dates to the British palisade line of 1838/40 since no additional repairs or replacements are documented historically. While degraded, the post was stable. Its present diameter of 0.20 metres or 7.88 inches is approximately 0.05 metres or 2 inches under the size specified in the 1838 call for tenders.

PHASE IV: POST MILITARY AND HISTORIC SITE PERIOD [1859-1979]

Between 1859 and the early 20th century, the eastern portion of the north ditch was in-filled. Investigations encountered four successive layers of fills within the ditch. One topographic map, dated 1909, shows the levelling and removal of the parapet from the bastion by that time (Carter-Edwards: 1980:772). The ditch appears to have a gentle slope, suggesting that the filling process was already well underway.

Above the fill deposits lay a series of levelling fills and buried sod lines. A recent terra cotta drainage pipe, running east west from Laird Avenue, is also associated with this sequence. An additional, but older, ceramic drain pipe runs north-south from the present parking lot. It services the area along the north glacis and was presumably installed during the initial phase of the park development. Opening onto the counter scarp, it channelled water into the existing ditch.

PHASE V: RECENT HISTORIC SITE PERIOD [1979- 1998]:

After the completion of the 1979 archaeological investigations, park personnel deposited two clay levelling fills. Above them lay a road surface and an associated 'A' Horizon. By 1993, yet another surface of sod covered both. Parks Canada installed the existing pathway in 1993. The present project removed the pathway during refashioning of the easternmost portion of the ditch.

OTHER OBSERVATIONS:

During the redefinition of the bastion, we superimposed the 1840 plan of Fort Malden (PAC, MG. 13, WO. 44, Vol. 37, p 44) upon the present landscape. Using the Brick Barracks as a landmark and scale, we laid out the outline of the bastion using a total station. We found the plan to be accurate to within 0.30 metre. Knowing this, future

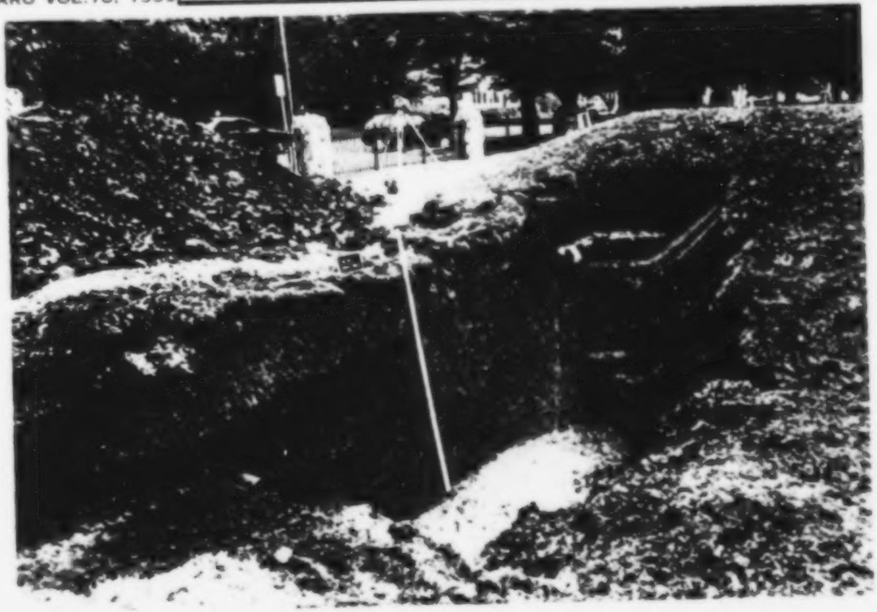

FIGURE 6. View of excavation trench 4H11C showing its location relative to the northeast bastion and Laird Avenue (seen in background). Photo by J. Last. Parks Canada, Ontario Service Centre [Cornwall]. Photo no. 4H-1366m.

projects can use the plan with a measured degree of confidence.

To protect historic resources, the present project marginally 'undercut' the fill within the ditch. We did not deepen the ditch to its full historic depth. Nor did we bring back the scarp face of the bastion to its original alignment. Instead, a buffer of approximately 0.5 metres was left to ensure the preservation of the historic scarp face.

THE COMMONS AT FORT GEORGE, NIAGARA-ON-THE-LAKE

Permit Holder: Joseph Last [Parks Canada, OR Permit 97-0016H]

INTRODUCTION:

In late October 1998, a three-man archaeological crew from the Ontario Service Centre (Cornwall), undertook a one-day investigation at the Commons, Niagara-on-the Lake. The purpose of the project was to record and survey a feature found on the Commons by Fort George staff earlier in the Spring. Apparently, a circular hole, measuring approximately 1.0 metres in diameter, opened just east of the stream that meanders through the Commons. The initial speculation was that it is a well associated with the 1817 - 1853 Commandant's Quarters. Our investigation proved this assumption to be true.

Lacking sufficient funds and time to undertake an intensive testing, our review of the well was preliminary in nature. The aims of the project were twofold: to confirm the function of the feature and to record its location in relation to the Sappers Bridge. To accomplish the latter, we tied the feature into the previous survey grids established for Fort George and Butler's Barracks. Once recorded, we proposed to backfill the feature with sand. In this way we could ensure the integrity of the well shaft, and the safety of the visiting public.

PAST ARCHAEOLOGY:

In 1969 Jason Henderson investigated the Indian Council House/Garrison Hospital located south of the Otter Trail and west of the small creek that bisects the Commons. He also tested the Commandant's Quarters further to the south and east of the same creek. Henderson returned to the site of the Commandant's Quarters in 1970 (Henderson 1974). During his investigations, he expanded the excavations to include the entire complex. Henderson uncovered the remains of the quarters that included at least three additions. He also unearthed a cellar, well, ash pit and privy.

THE WELL:

Among the features associated with the Commandant's Quarters, Henderson discovered a well beside the southwest corner of the kitchen (Figure 8). First thought to be a construction pit, additional investigations led Henderson to re-evaluate his interpretation. The well measured approximately 0.91 metres in diameter and attained a depth of at least 3.23 metres below a surface.

THE 1998 INVESTIGATION:

The initial goal of the investigation was to record the location of the well by determining its orientation and distance from the Sappers Bridge. Once accomplished, correlating it with the previous survey undertaken by Jason Henderson would be possible. During his investigations of Indian Council House/Garrison Hospital and Commandant's Quarters, Henderson established six bench marks. While useful during the excavations, they tied the excavations to the Sappers Bridge in only a very general way. We required an accurate measurement to pinpoint the location of the original excavations. Only then could we determine if the recently discovered feature was the well previously tested by Henderson. As a result, a primary aim of our investigation was to reestablish Henderson's benchmarks and to correlate his findings with ours. Another goal was to verify the function of the feature. Was it a well or a root cellar?

RESULTS OF THE 1998 INVESTIGATIONS:

BENCHMARKS AND SURVEY:

Re-locating the benchmarks used during Henderson's excavations was wrought with problems. Three of the six were temporary stakes, now since removed. Of the remaining stations, weathering has eradicated the incised 'X' from two of them. We did locate the Monument commemorating the location of the Indian Council House, used by Henderson as a benchmark. However, it can be considered only as a general siting. Photos from 1969 show the monument on its side. Today, it is in an upright position. We presume that the Park personnel did not move it from its 1969 location but simply repositioned it back to its original vertical state.

Lacking sound benchmarks, we were forced to work off the survey monuments at Fort George. We extended the survey grid from within the fort west to the Sappers Bridge. This allowed us to tie the structure and the newly opened well into the overall site plan. We then continued the grid toward Butler's Barracks, thus linking the 1979 Butler's Barracks grid with that of Fort George. The distance between the Sappers Bridge and the newly collapsed feature measured 186.45 metres.

FEATURE DESCRIPTION:

A cursory review of the feature suggested that it was a well. During our examination it appeared as an oval depression measuring 1.42 metres east-west by 1.06 metres north-south. A small hole, resulting from the collapse of the wooden well head or cover, ran along the western edge of the depression. Approximately 0.82 metres of fill covered the well. It contained plaster, cut nails and other building debris. Overlying the fill deposit is a layer of loam and recent sod.

A layer of closely abutted, wooden planks separates the upper coursing of the well from the fill above (Figure 9). The planks are 7 inches wide

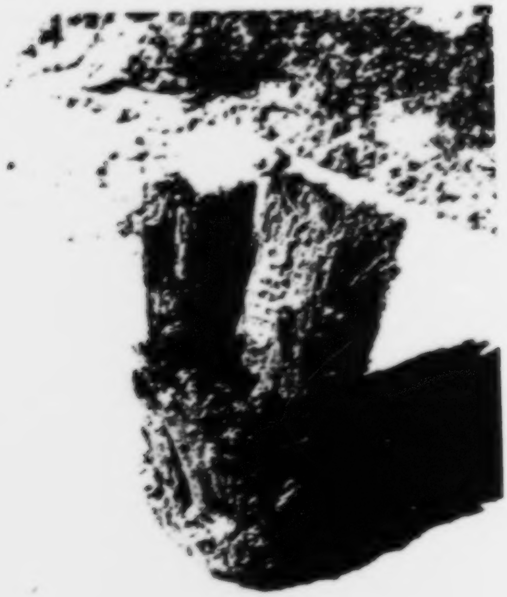

FIGURE 7.
View of palisade post *ca.* 1840. Photo by J. Last. Parks Canada, Ontario Service Centre [Cornwall]. Photo no. 4H-1376m.

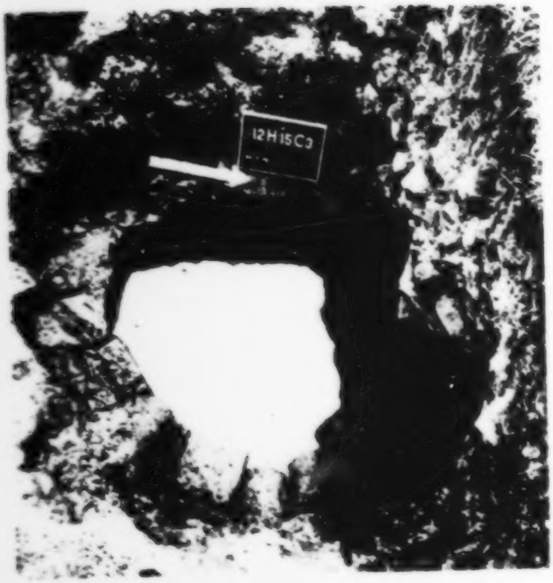

FIGURE 8.
View of the well, excavation unit 12H15C, facing west. Parks Canada, Ontario Service Centre [Cornwall]. Photo no. 12H-58x.

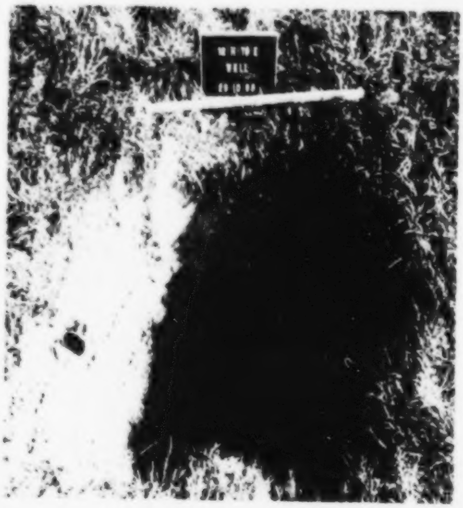

FIGURE 9.

View of well, excavation unit 12H19E, facing east. Photo by J. Last. Parks Canada, Ontario Service Centre [Cornwall]. Photo no. 12H-3w.

and 1 ½ inches thick (0.18 metres x 0.04 metres). Unfortunately, their overall length could not be determined. The walls of the well are constructed of angular field stone, laid in discernible courses (Figure 10). They average 0.13 metres to 0.15 metres in height and vary in length from 0.15 metres to 0.26 metres. While appearing circular in plan view, the feature could very well be oval. Difficulties resulting from cramped working space and extremely low lighting conditions, made it difficult to obtain detailed measurements of its dimensions. The interior of the well is approximately 0.85 metres wide. A deposit of damp clay presently occupies the well bottom - perhaps resulting from the collapse of the overlying fill. A void of approximately 1.14 metres in height exists between the remaining wooden well head and the fill within the well.

In relation to the well discovered by Jason Henderson, the recently exposed well lay 3.43 metres further to the south. Considering the distance Henderson had to survey, and the calibre of his instruments, it is very possible that they are in fact the same feature. Several factors support this view. First, the location of the recently found well falls within the area previously excavated by Jason Henderson. If two wells existed, he would have uncovered both in 1970. Second, the fills that covered Henderson's find are in no way similar to those encountered during our survey. Henderson recorded that the fill contained large amounts of building debris and whole bricks and brick bats. This was not so in the recently exposed well. Similarly, a layer of stone rubble overlay the area in 1970 resulting in its initial interpretation as a construction pit. Our investigations found no such material above the well head. Considering that the two features lay only 3.43 metres apart, it only seems reasonable that both would share similar fill deposits. Only a recent disturbance (like backfill from the 1970 archaeological excavations) could eradicate these characteristics from the overlying fills by homogenizing the overlying soil.

For these reasons, it is very likely that both features are in fact the same well. Unfortunately, the presence of the wooden cap or well head is problematic. While documentation suggests that Henderson used of a wooden platform during excavation, no records categorically state that he capped the well before backfilling. The relationship between the two features will therefore remain inconclusive until portions of the Commandant's Quarter's are re-exposed. Only then is it possible to relate, with confidence, the features to the structure and to themselves.

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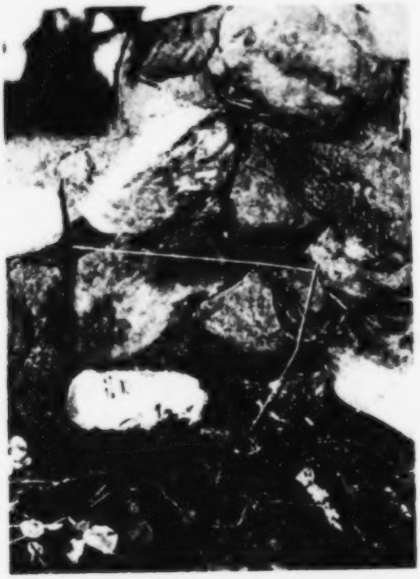

FIGURE 10.
View of interior of well shaft showing fieldstone coursing, facing east. Photo by J. Last. Parks Canada, Ontario Service Centre [Cornwall]. Photo no. 12H-5w.

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SUMMARY OF THE 1998 ARCHAEOLOGICAL INVESTIGATION AT FORT MISSISSAUGA NATIONAL HISTORIC SITE, NIAGARA-ON-THE-LAKE, ONTARIO

STEPHEN MILLS

INTRODUCTION

Originally intended to assist with the defense of the Niagara Peninsula during the War of 1812, the bastions of Fort Mississauga National Historic Site now stand guard over the first and seventh greens of the Niagara Golf Club (Figure 1). It's tuft-covered, star-shaped ramparts blend nicely with the manicured fairways and for a time, golfers used the ramparts as tee-offs.

Encased within Fort Mississauga's earthworks are two powder magazines, which are among the oldest extant structures in the Niagara area. Constructed entirely of brick and accessed through brick-lined tunnels, these vaulted magazines are the earliest masonry features inside the fort. Over time, the entrance wing walls to the magazine tunnels have deteriorated to the point where stabilization was required to prevent their total collapse. Last repaired in 1970, cracks had again developed in the walls causing the displacement of many bricks. During August 1998 a crew of three archaeologists conducted a three-week investigation at Fort Mississauga. The goal of the archaeological project was to evaluate the below-grade condition of the entrance passage walls and report their condition to Parks Canada engineers.

As an aside to the powder magazine investigation, four small test pits were dug near the fifth green of the golf course to mitigate the establishment of a sand bunker. As this testing revealed only modern water service lines and golf course-related fill deposits, it will not be addressed in this summary.

HISTORICAL BACKGROUND

The structural history of Fort Mississauga has already been reported upon by Parks Canada historians David Flemming (1972) and David McConnell (1977). A succinct historical background was also produced by Joseph Last in the previous volume of the AARO (Last 1998). The following background is therefore limited to the powder magazines as they were the primary focus of the archaeological investigation.

Fort Mississauga was built on Mississauga Point, at the confluence of the Niagara River and Lake Ontario. A lighthouse with an associated dwelling, built in 1804, was removed to make room for the fort. Construction of Fort Mississauga began in 1814, however, as the War of 1812 ended soon afterwards, military priorities changed and the fort was not completed until 1823. Because they had to be buried within the earthworks, the two powder magazines were among the first elements of the fort built in 1814. They were positioned within the western ramparts, north and south of the entrance gate. Access was through arched brick-lined tunnels that open onto the parade area. Earthen material used to create the ramparts was dug from the enciente (interior) of the fort, therefore serving a dual purpose: raise the

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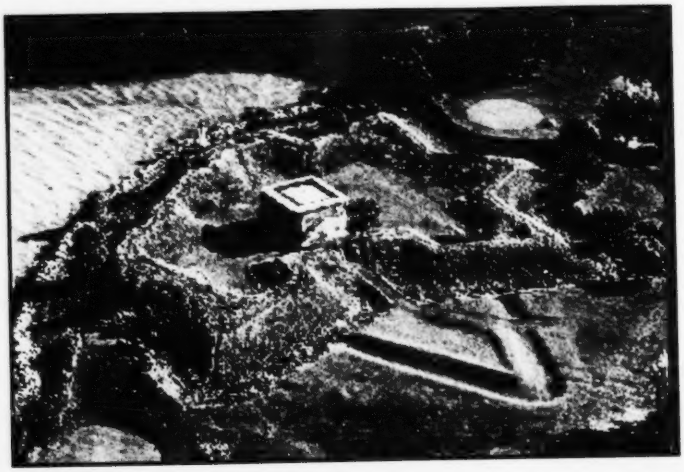

FIGURE 1. Fort Mississauga National Historic Site, Niagara-on-the-Lake, Ontario

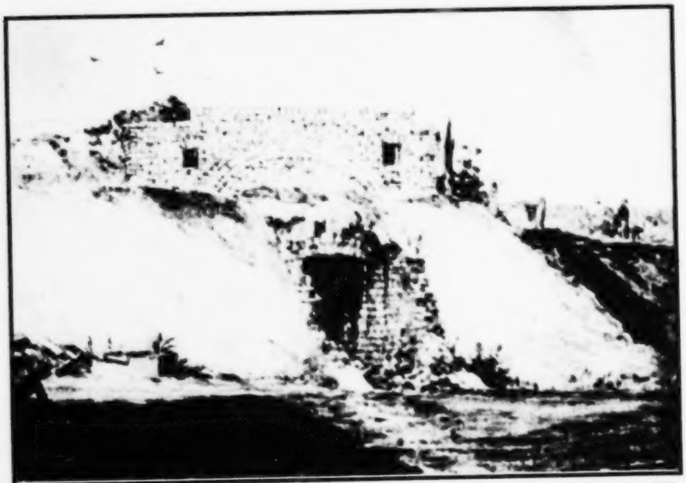

FIGURE 2. North powder magazine circa 1880. Watercolour by W. Armstrong. Note the deterioration of the entrance passage walls.

earthworks while lowering the parade ground.

Fort Mississauga was upgraded between 1838 and 1839 in response to the Upper Canada Rebellion (1837-1838). Although unrecorded, the powder magazines probably benefitted from this upgrade. As the earthworks were raised, retaining walls would have been necessary to keep the magazine's tunnel entrances clear. This was the function of the entrance passage walls. A map of the fort, produced in 1852, also suggests the entrance passages are longer than those depicted on an 1814 map.

METHODOLOGY

Two excavation units were dug at each of the two entrance ways. A 1.25 m X 2.0 m unit (sub-operation 8H26A) was placed on the ramparts behind the north passageway wall leading to the south magazine while a 1.4 m by 1.15 m unit (sub-operation 8H26B) was dug within the passageway. The north magazine passage way was tested in the same fashion except for a smaller unit (sub-operation 8H27B), measuring 1.12 m by 0.5 m, in the passage way. Sub-operation 8H27A was excavated on the ramparts behind the north wall.

Plan views were prepared for each of the more than 70 cultural deposits and historic features discovered during the project and at least two profiles were drawn for each sub-operation. Close to 2,100 artifacts were recovered, spanning the usage of the fort from 1814 to modern times.

RESULTS

The archaeological investigation succeeded in exposing many previously unrecorded elements and features relating to the passageway walls, their foundations and their structural histories. Additional discoveries include information on the original parade surface (pave) inside the fort and on the construction of the earthen ramparts. Each of these will be briefly summarized below.

THE ENTRANCE PASSAGE WALLS

One of a series of contemporary water colour paintings produced in the early 1880s indicates the entrance passage walls were in a dilapidated condition (Figure 2). Our investigation discovered that the current brick walls were most likely rebuilt early in the 20th century, probably during the First World War (1914-1918). The walls are supported upon Portland cement footings that, in turn, sit on masonry foundations. "French" drains were discovered behind the passage way walls. A "French" drain is an historic construction technique using a trench filled with loosely-packed stones through which water can be channeled. In the case of "French" drains behind masonry walls, the water percolates through the stones and exits through gaps intentionally left at the base of the walls. Gaps were found in the lower courses of the brickwork in all four passage way walls at Fort Mississauga.

Similarly-constructed "French" drains were discovered behind the fort entrance wing walls in 1997 (Last 1998:128). They too had been reconstructed on Portland cement footings. Last used historical documentation and the discovery of WW I-period artifacts behind the walls, including a .303 cartridge, to credit the reconstruction to the 2nd Field Company, Canadian Engineers who were stationed at Camp Niagara in 1915. Besides similar reconstruction techniques noted behind the powder magazine entrance passage walls, a .303 cartridge (stamped with the date 1917) was discovered by a worker repairing the south wall to the south powder magazine. This single artifact helps confirm a WW I date for these walls.

Unfortunately, the "French" drains were fouled when the upper portions of the walls were re-parged about 1970. Re-parging trenches, dug behind each wall, destroyed the upper elevations of the "French" drains. Our investigation revealed that these trenches were backfilled with a mixture of clay-based sandy soil and displaced cobbles, therefore negating their function. Sure enough, most of the displaced brickwork slated for repair was in the upper course works, just where the re-parging trench was discovered.

HISTORIC MASONRY FOUNDATIONS

Our excavations discovered masonry foundations beneath the Portland cement footings supporting all four entrance way walls. These masonry foundations stand between 71 cm and 90 cm high.

Dating their construction was possible through both stratigraphic and artifactual evidence. The builder's trenches for these foundations cut through the 1814 surface in both entrance passages showing that they were not a part of the original powder magazine construction. Among the artifacts recovered in one of the footing trenches for the south magazine were two specimens that suggest the footings date to mid-1840s. These two artifacts were a top hat primer cap and a sherd of flow blue-decorated refined earthenware (Figure 3).

Primer caps were patented by Alexander Forsyth of Scotland in 1807 (Gooding 1966:127). Seen as a replacement for the centuries-old flintlock, the primer cap was a self-contained ignition mechanism. Acting as a small combustible charge, the primer cap was fitted unto a specially designed "nipple" on the percussion lock. When the hammer struck the primer, the charge ignited, sending a flame into the chamber and firing the gun powder. The invention of the primer cap revolutionized weaponry and eventually led to development of the rim and center fire cartridges of modern times. Although patented in the early part of the century, the British Army was slow to introduce percussion weapons into regular service. The Brunswick Rifle, the first percussion firearm used by British soldiers in Canada, was issued to the Royal Canadian Rifle Regiment (RCRR) in September 1844 (PAC WO 25/634). As troops from the RCRRs garrisoned Fort Mississauga from 1843 until 1850 (McConnell 1977:24) it is presumed that they received their new rifles, with top hat primers, during their deployment, in the mid-1840s.

The flow blue potsherd followed a similar, but later, pattern of introduction as the primer cap. Although the practice of decorating earthenwares with blue paint that "flowed" over the vessel was invented around 1825 (Williams 1971:5-7) this style of pottery did not appear on the Canadian marketplace until the 1840s (Collard 1967:118). It is thought to have reached Upper Canada by 1845 (Kenyon 1992:6). Therefore, like the primer cap, the flow blue potsherd could not have been deposited in the entrance wall footing trench until after the mid-1840s.

WOODEN ENTRANCE PASSAGE WALLS (?)

The discovery of four wooden structural features in direct association with both passage way wall footings suggests that, before the construction of the brick walls, some sort of wooden revetment was used to hold back the ramparts. Two post holes were found on either side of the tunnel entrance leading to the south magazine. Oddly enough, where these post holes were found, the masonry foundations for the two entrance passage walls did not support the entire length of the brick walls. Both footings came up between 15 and 30 cm short of the entrance tunnel. The post holes, which contained wood remnants and broken bricks, were discovered in both of the interstices between the masonry footings and the base of the entrance tunnel walls. The remains of a 10 cm X 20 cm horizontal wooden member was discovered near the base of the ramparts, oriented perpendicular to the north wall of the south magazine entrance passage. The pave (see below) butted against the outside (east side) of this feature, indicating that it was in place when the pave was laid (presumably between 1814-1823). This wooden feature was truncated by the trench for the masonry foundation on its southern end. It continued into the north wall of the sub-operation.

A post mold, containing vertical wood fibres, was discovered beneath the quoin of the east end of the northern magazine entrance passage wall. Because of time constraints, the excavation in the north magazine passage way did not extend to the doorway to the tunnel, therefore it is uncertain whether posts are in that area.

That horizontal and vertical wooden members were found in direct association with the entrance passage walls seems to suggest that the passage way may have originally been reveted with wood. The wood-lined sally port in the northeast ramparts was rebuilt in brick in the 1840s (Flemming 1972:50). Although there was no documentary record of similar repairs to the magazine entrance passage ways, the archaeological evidence suggests that they too may have been

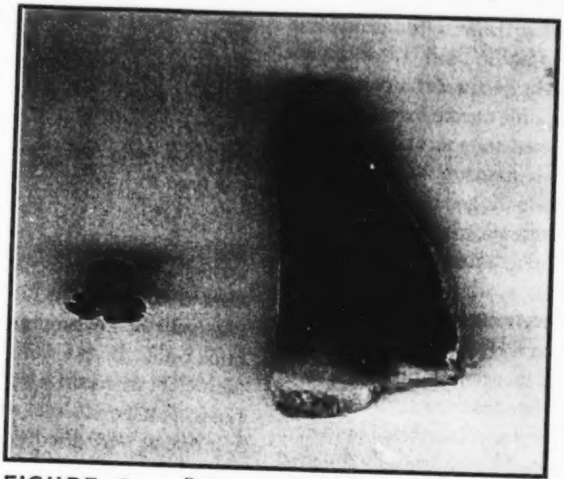

FIGURE 3. Primer cap (left) and flow blue decorated earthenware (right) from one of the foundation footing trenches.

similarly rebuilt. The discovery of artifacts post-dating the mid-1840s in one of the entrance passage footing trenches also points to a mid-nineteenth-century construction or repair date for the masonry footings.

EARTHWORKS CONSTRUCTION

Our excavations uncovered several strata representing the original 1814 ramparts. The primary stratum used to create the ramparts was the natural "C" horizon clay sculpted downwards by the excavation of the fort's interior. This find confirms the Royal Engineer's report that the interior of the fort was scraped during its construction. Our calculations indicate that the interior of the fort was lowered a minimum of 85 to 90 cm during its construction. The soil dug from the parade was then redeposited along the trace of the fort to create the earthworks. Mixed soil deposits, representing the 1838 raising of the earthworks, were documented above the original 1814 fill strata. The 1838 fill deposits flowed out over the edges of the pave, indicating that the interior of the fort "shrunk" as the ramparts became higher (see below).

1814 PARADE SURFACE (PAVE)

Evidence of the original parade surface or pave inside the fort was uncovered in three of four excavation units. This feature was not recorded in the sub-operation behind the north magazine passage way wall. Essentially, the pave provided a solid surface inside the fort. It was constructed from a layer of rounded cobbles covering a prepared sandy clay bed. This surface was also recorded in 1997, several metres northeast of the north magazine (Last 1998:126).

The discovery of the pave provided important information on the various cultural activities inside the fort. Inside the two entrance passages, it had been truncated by the foundation footing trenches. This showed that the footings were built after the pave was laid and confirmed that the passage ways were not a part of the first fort. The pave was also recorded at the base of the ramparts on the north side of the south magazine entrance passage. There, it stretched more than 60 cm beneath the current rampart, having been covered by the raising of the earthworks in 1838 and perhaps also the settling of the same over time.

MATERIAL CULTURE

Our excavations uncovered a total of 2,094 artifacts, all but six were found inside the fort. Artifacts from the fill and occupation deposits reflect the occupation of the site from the beginning of the nineteenth century. Some earlier artifacts, such as creamware and pearlware potsherds may have been deposited by the lighthouse keeper, Dominic Henry and his family. They occupied the site before construction of the fort in 1814 (Flemming 1972:7). Other kitchen-related specimens reflect the domestic nature of the RCRR's and subsequent militia units that garrisoned the fort during the late 1830s through to the mid 1860s.

Military-related artifacts were also recorded, notably twenty-four pound grape shot, a chin strap scale, gun flints and musket balls. Recreational artifacts such as nineteenth-century alcohol bottle glass and clay pipes were present. Golf balls and wooden tees from the upper cultural deposits around the powder magazines relate to more peaceful times when the fort sustained more damage from a nine iron golf club than it ever did from a nine-pound iron cannon ball.

CONCLUSION

The two subterranean powder magazines are two of the earliest features of Fort Mississauga and among the oldest extant structures in the Niagara area. Stabilization of the brick retaining walls lining the entrances to these magazines allowed for an archaeological investigation that documented the structural history of the walls and associated historic features. The existing brick walls were rebuilt early in the twentieth century, likely during the First World War. Evidence of earlier retaining walls, possibly made of wood, was recorded as was information on the pave. Strata representing the sequence of rampart construction were also recorded. Artifacts recovered from the occupation and earthworks construction deposits on the ramparts and in the entrance passages tell of the military, domestic and recreational history of the site.

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PLAZA BRIDGE, OTTAWA LOCKS
RIDEAU CANAL NATIONAL HISTORIC SITE

CAROLINE PHILLIPS

Fieldwork continued at Plaza Bridge in the winter and summer of 1998. Based on the promising evidence found in 1996 and 1997 test excavations (Phillips, Marucci and Sheehan 1998: 139-142) Caroline Phillips and Virginia Sheehan were on site when construction began beneath the west arch in February 1998. Approximately 3 metres of fill that had accumulated since the 1870's was to be removed from a 16 by 78 metres area beneath the west arch in order to create a more visitor-friendly approach to Ottawa Locks and the construction of stairs leading from the National War Memorial down to the Rideau Canal.

The excavation techniques used included a construction foreman, hoe ram, backhoe and dump trucks all monitored by two very cold archaeologists. Despite the conditions, by the end of the first day at -20°C the entire west wall of the blacksmith shop, built by the contractor Thomas McKay who built the eight locks at Ottawa between 1826 and 1832, had been located. By the end of the first week of February, a section of the north face of the 1827 Sappers' Bridge had also been located. Both these resources date to the period of commemoration (1826-50) of the Rideau Canal by the Historic Sites and Monuments Board of Canada.

Excavating an archaeological site in below freezing temperatures and with a backhoe is not an ideal situation. A number of factors, however, led to the success of this project. A thorough study of the historic data, including plans and photographs had been completed. The knowledge gained from this study combined with two previous seasons of testing enabled the archaeologists to discern the many layers of fill as they were being removed with the backhoe. The construction crew was very cooperative (finding a major resource on the first day helped) and the backhoe and hoe ram operators were skilled and experienced. Immediate access was also available to a Parks Canada heritage recording team for surveying and photography. And finally the weather was on our side, with milder than normal winter temperatures.

The blacksmith shop appeared from an early sketch (Figure 1) to have been built at the same elevation as the top of the canal walls at the north end of the west arch, thus there would be about three metres of fill before encountering this historic level. It was also known from previous testing that Public Works and Post Office garage foundations extended nearly 3 metres below surface, destroying any earlier resources. In fact, when located, the concrete foundations sat on top of the west remnants of the blacksmith wall and the concrete was carefully chipped away with a hoe ram!

At the south end of the west arch, remains

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of the 1872 addition to the original Sappers' bridge (Figure 2) had been found on bedrock in 1997. It was assumed that the "bump" in the road beneath the Plaza Bridge was caused by this bedrock outcrop and little was expected of the 1827 portion of the bridge. Remains had been found in the stone work on the east side of the canal and surveyors were able to estimate where the north face should occur under the west arch. Construction of the Plaza Bridge in 1911 had destroyed any remains that once existed on the west side and the area immediately above the Sappers' Bridge was covered with foundations, wiring, water lines and sewer lines from the garages. Despite this, when the backhoe tipped a dressed rectangular stone at the foot of the bedrock outcropping, there was no doubt that a portion of the north face (Figure 3) had survived. The bump on the grassy area on the west (left) side of Figure 2 is the bedrock outcrop and the portion of the bridge that was located is at this bump. Also remaining was the edge of the portal wall cut through the bridge in 1872 to enable a road to pass under the west arch. The east wall of this portal subsequently had to be recorded and removed as the 1872 road was too narrow to permit passage of emergency vehicles to service Ottawa Locks. The Sappers' bridge was built of courses of dressed ashlar with a rubble masonry interior. On the west side of the Canal, the bridge had been built right on bedrock, a spot the Plaza Bridge restoration engineers all agreed would have been their choice with today's modern construction techniques. The ashlar is in excellent condition and provides valuable information on Sappers' and Miners stone dressing techniques which can be used as a pattern for future canal restoration. Soon after the remains were exposed a sand-filled plywood box was built over them and the remains, a portion of the north face and the full width of the original and 1872 addition, will be stabilized and displayed in the future.

Following the initial discoveries, the remaining fill was excavated over the next six weeks. One additional feature was located, a midden on the east side of the west arch, east and north of the blacksmith shop. This midden contained coal ash, building debris and several stoneware ink bottles of the type used for concentrated ink. This debris may have been thrown out when the blacksmith shop, which by 1871 was the Rideau Canal Lock Office, was torn down, or it may have come from the Ottawa Post Office formerly located north of the Sappers' Bridge.

Once the soil removal was completed, and the temperature had warmed to slightly above freezing, RMOC engineers requested that the extent of the blacksmith shop remains be examined. Initially this investigation took the form of a careful backhoe excavation over the northeast and southeast corners. These were quickly located using a historic plan and the location of the shop was then clearly marked on the contractor's drawing as a protected area.

During the summer of 1998, RMOC allowed Parks to conduct further testing inside the shop to determine what was left and what, if anything remained inside. Two L-shaped test units were opened in the northeast and southwest corners by a crew of 10-12 students, volunteers and Parks Canada employees. The excavation was well publicized and hundreds of visitors watched the excavations. These excavations revealed that approximately 1 metre of the 50 cm thick stone wall had survived (Figure 4). The building had been dismantled by shoving the upper portions of the walls into the interior, sealing the charcoal- and slag-covered dirt floor of the shop. The masonry wall had been painted on the interior with whitewash to within 30 centimetres of the floor level. With the canal in operation, this floor level was waterlogged (the shop would have been built before the canal) and the metal artifacts recovered are in a condition similar to those found underwater. The most surprising result of this excavation was the total absence of artifacts dating to the building's use as a storehouse and later lock office. It is possible that the walls were whitewashed when it was an office and that the unpainted 30 centimetres marks the level of a former wooden floor built to combat the wet conditions. However, there was no evidence of wood or flooring nails and of the datable material culture, nothing dates to later than the 1830s. If the building was being demolished in 1871, it is hard

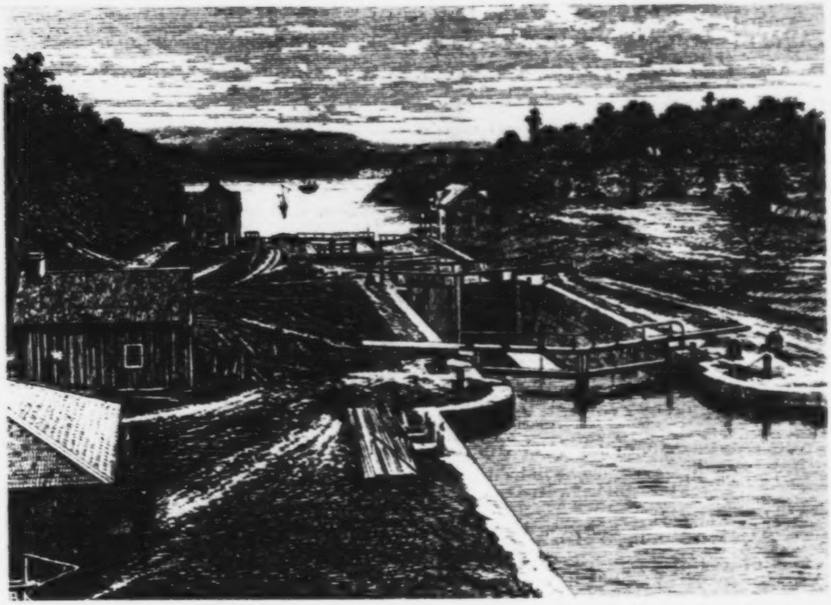

FIGURE 1. The Ottawa Locks blacksmith shop (lower left hand corner) ca. 1870. (PAC C59219).

FIGURE 2.
Cramped conditions beneath the front verandah, Laurier House. (Photo by R. Chan; 99H-85W)

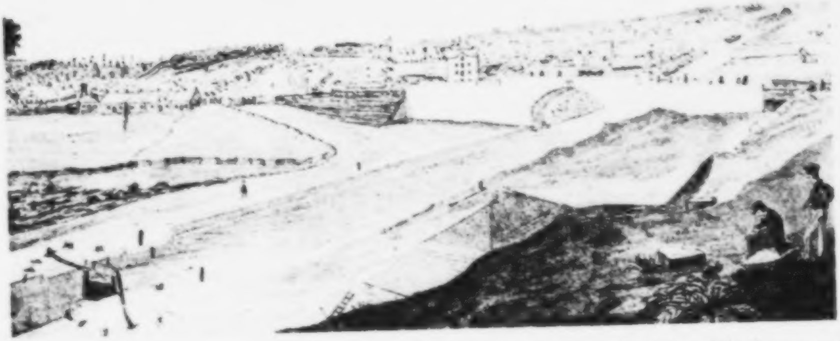

FIGURE 3. "Sappers' Bridge, 1845" Thomas Burrowes, Archives of Ontario. The bump in the grass on the west side of the bridge is the bedrock outcrop where the remains shown in Figure 4 were located.

FIGURE 4. Remains of the north face of 1827 Sappers' Bridge under the west arch of the Plaza Bridge. (Photo by J.-P. Jérôme)

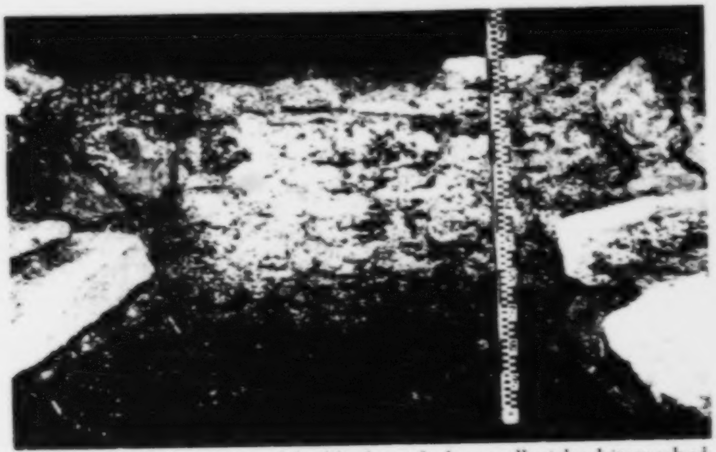

FIGURE 5. The remains of the blacksmith shop wall with whitewashed interior. Rubble from the dismantling is evident on both sides of the excavation. (Photo by J.-P. Jérôme)

to imagine that they took the time to remove the flooring. The excavation units were filled in with sand and as the shop floor is still 1.5 metres below the new road grade surface, a decision has not yet been made on how it will be displayed.

In the late fall of 1998, a huge bore hole was excavated to the south and east of the blacksmith shop to accommodate the installation of city water lines below the canal. This excavation was carefully monitored and the buried surface, known because of the blacksmith shop excavation to be about 1.5 metres below the construction surface, was easily discerned. As the bore hole excavation neared the southeast corner of the shop, the black organic surface layer suddenly thickened to over 30 centimetres. Once the hole had been stabilized and was safe to enter, samples taken quickly revealed charcoal and slag. This is right in the way of the service lines to be laid in the spring of 1999; another season of excavation awaits us as we have obviously located the blacksmith shop midden.

ACKNOWLEDGEMENTS

Thanks to the cooperation of all the players in the Plaza Bridge restoration, Parks Canada, the National Capital Commission, and in particular the Regional Municipality of Ottawa-Carleton, this project became an archaeologist's dream. With historic resources right in the middle of the construction zone, only the portion which affected the safety of the site had to be recorded and removed. Engineering plans were quickly and enthusiastically redrawn to take advantage of the cultural resources that will eventually frame the new stairway. At all times, both in design and publicity, it was evident that RMOC engineers wanted to blend the old with the new under the Plaza.

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NATIONAL PARKS AND NATIVE SITES ARCHAEOLOGY, PARKS CANADA, ONTARIO SERVICE CENTRE

BRIAN D. ROSS, CESARE D'ANNIBALE AND KYLA SPENCE

POINT PELEE NATIONAL PARK: MITIGATION OF NATURAL GAS PIPELINE (11H)

[Parks Canada Permit 98-15H]

In 1998, Point Pelee National Park (Figure 1) installed ~ 7 kilometres of buried natural gas pipeline from their Administration Building to the Visitor Centre. Although the exact route of the pipeline had never been properly archaeologically surveyed, previous work (Sanderson 1932; Lee 1951; Keenlyside 1977; D'Annibale and Ross 1994a; and Ross 1997) indicated that at least 11 archaeological sites occurred in close proximity. For the most part, this installation entailed a combination of narrow trenching and directional boring that had negligible impact on buried cultural resources. However, "hand holes" or "rocket pits", required to extend the pipeline underneath pavement or sensitive natural resources; "tie-in pits", to manually link individual pipe sections; "T" trenches, to link various buildings to the main line; and slit trenches, to locate buried telephone and hydro lines in the path of the pipeline, did require archaeological intervention (Figure 2).

As suspected, roadbed disturbance at the edge of the right-of-way was generally found to affect an area to a depth of between 20 and 25 cm. This disturbance was complete, with original ground having been removed during construction and new material imported as macadam fill. This new material often contained possible artifacts, especially in the form of chert flakes. When found in this context, none of this material was kept since it had no proper provenience in regards to Point Pelee. Below the roadbed, though, cultural material does survive *in situ*. The previous installation of hydro and telephone lines had also disturbed archaeological sites. In these instances, the cultural bearing material had not been removed, but simply churned up and re-deposited; and no new material appears to have been imported into these installations. As such, all cultural material found in these disturbances was collected as representative of the original archaeological events that occurred there. In total, three previously recorded sites were mitigated and nine new sites were discovered.

The first 2.5 kilometers of the pipeline followed the shore of Sanctuary Pond, part of Point Pelee's extensive marsh. Four new sites were discovered here: Administration (11H31), Building #50 (11H28), Sanctuary (11H33) and North West (11H34). Work at the Administration site revealed

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Cornwall, Ontario K6H 6S3

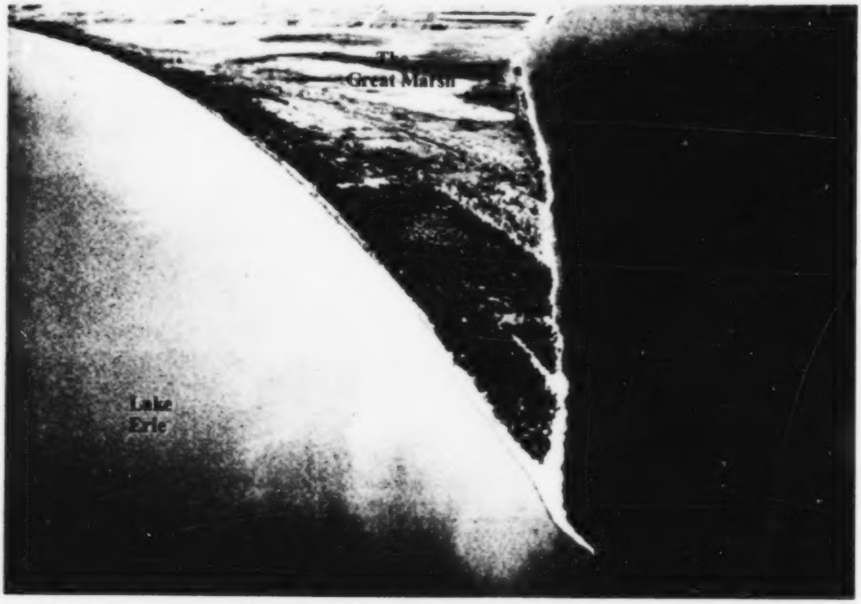

FIGURE 1. Aerial view of Point Pelee National Park, showing the extent of the Great Marsh.

FIGURE 2. Crew excavating a "tie-in" trench along the 7 km natural gas pipeline route, Point Pelee National Park, 1997.

a buried cultural horizon, including a discernible pit feature, that produced numerous chert flakes, Native ceramic sherds, fish, turtle and small mammal bones. The Building #50 site also produced a variety of Native artifacts. Some of the Native ceramics have exterior oblique punctates (and corresponding interior bosses) over a cord malleated surface, a converging pattern of oblique dentates on the lip, and oblique linear dentates on the interior. Two features at this site produced carbon samples that have been dated to BP 1274 +/- 110 (calibrated to BP 1210 +/- 110 years [# BGS.2112], using Stuiver and Reimer's calibration programme "REV 3.0.3c", 1993) and BP 1868 +/- 125 (calibrated to BP 1780 +/- 125 years [# BGS 2113] using Stuiver and Reimer's programme, see above).

The Sanctuary site proved to be extremely rich. Indeed, the quantity of Native ceramics, lithics and bones found here suggests that this was a large campsite. By far the most numerous artifact type was lithic, representing every stage of stone tool manufacture/repair from cores to retouch flakes. Formal tools included a crude biface and bases from a corner-notched projectile point, a tiny side-notched "bird" point, and a larger triangular projectile. The Native ceramics can be grouped into two major varieties: sherds with a horizontal drag-stamped motif across a fabric/cord impressed exterior, a dentated lip, and a smoothed interior finish; and sherds with at least two rows of shallow, circular (i.e., reed or bird bone) impressioins over a fabric/cord impressed exterior and interior oblique linear dentates. A large patch of charcoal produced a date of BP 1453 +/- 55 (calibrated to BP 1325 +/- 55 years [# BGS.2111], using Stuiver and Reimer's calibration programme "REV 3.0.3c", 1993).

The North West site (11H34) yielded a small collection of historic artifacts and a large assemblage of butchered bone. Even though these finds were made only 0.15 kilometres south of the Sanctuary site, the obviously different material warranted a different site designation.

The newly discovered Blue Heron site (11H29) and the known Marsh Boardwalk site (11H15) are located on the southern channel into Sanctuary Pond. Both occur in a high use area of the park and have suffered greatly from road construction, service installations, and the demolition of private cottages in the 1960s/70s. Nevertheless, the discovery of intact cultural material at these two sites bodes well for site preservation below the modern overburden of roads, parking lots and visitor facilities. At the Blue Heron site, a buried sod horizon and pit feature produced a quantity of Native material. Besides a variety of modern and historic objects, the Marsh Boardwalk site also yielded Native artifacts, including a chert biface fragment.

From the Building 220 site (11H30), the pipeline began to veer away from the marsh. Excavations at Building 220 produced both historic and Native artifacts. Though showing signs of disturbance, the discovery of Native material alludes to a larger, more complex Aboriginal settlement pattern continuing south from the marsh, perhaps incorporating Keenlyside's site 11H8 (1977:429). Farther along, the Sleepy Hollow site (11H35) was found to be a rich, multi-component Historic/Native period site. The site extends over 0.3 kilometres and may be associated with Keenlyside's 11H6 (1977:416). Among the Native assemblage of artifacts were the tip fragment of a chert projectile point, a dentated rim sherd, and the poll end of a groundstone axe/adze.

The North Delaurier site (11H32) yielded only historic material and is believed to be a component of the adjacent 19th century Delaurier homestead. Trenching at the homestead (11H20) itself revealed nicely stratified deposits. A buried sod horizon contains a mix of both modern and historic material, while a second buried horizon corresponds to the top of the Native occupation. Finds suggest that lithic tool manufacture was being undertaken here, in the form of pebble chert extraction/reduction. This occupation relates directly to Native material first discovered in the northwest corner of the Delaurier site during a 1992 archaeological survey (D'Annibale and Ross 1994a).

It would appear that the focus of Aboriginal habitation on Point Pelee, as demonstrated by many of this season's discoveries, was directed more towards the great marsh than to the nearby Lake

Erie shore. Although the narrow gut of land at the north end of the park undoubtedly served as a staging ground for portaging across the point, the main attraction in this area was likely the rich, diverse and accessible food resources of the marsh. Even the more southerly sites, such as Sleepy Hollow and Delaurier, which now appear to be interior sites, may have been much closer to the marsh originally. Historic and modern efforts to drain the marshes for land reclamation have likely altered the natural landscape dramatically. It is also possible that as the sandy point gradually shifts west, these sites may originally have been located nearer to, or at least oriented towards, the relict Lake Erie shore.

PUKASKWA NATIONAL PARK: PIT SITE RECORDING AND INSPECTION (28H)

[Parks Canada Permit 98-6H]

The programme of archaeological investigations at Pukaskwa National Park completed its fifth year of systematic site recording, inspection and discovery in 1998. Continuing northward along the shore of Lake Superior, this year's project advanced into the area between Triangle Harbour and the Cascade River (Figure 3). Intent on locating all identifiable petrofrom sites in the park (generically called "Pukaskwa pits"), eight cobble beaches, four of which contained pit sites, were examined. Of particular interest is the observation that three of these sites: Singing Stones (28H60), North Singing Stones (28H61) and Upper Singing Stones (28H63), occur over underground streams that are clearly audible. Since underground water figures prominently in Algonkian/Ojibway cosmology (Rajnovich 1994: 160), its presence may have been a contributing factor to siting petrofrom features on these beaches.

The first site to be investigated was the North Byron IV site (#28H59). This site had been discovered, in 1974, by Dr. K. C. Dawson (1975:83) and named "Pasnagus" (DaIm-8). Although Dawson reported three features here, our investigations could not re-locate his stone-ringed pavé or, to use his term, "conjurer's lodge" which appears to have been overgrown by the encroaching forest. The remaining two extant features are well-pronounced, consisting of a large, deep, opened cache pit and a semi-subterranean dwelling with an interior hearth. Built into the lee side of the beach ridge, this dwelling suggests an occupation during the spring or autumn, when it would have been necessary to take shelter from the raw coastal elements. Vandalism at this site, in the form of damage to the cache pit and the excavation of a new pit barely 3 metres away, necessitates that this site be regularly monitored.

The Singing Stones site (28H60) was also discovered by Dawson in 1974 and originally named "Fruitful", DaIm-9 (Dawson 1975:83-86). Although Dawson reported five petroform features at this site, our investigations discovered 21 cobble stone structures. These structures consisted of 11 simple pits, three walled/ringed pits, three cairns, two rock rings, and two pavés. Dawson also discovered the "Hubelit" site (DaIm-10) with four features (Dawson 1975:86). Re-named North Singing Stones (28H61), our investigations discovered 27 features at this site. These features included 18 simple pits, five walled/ringed pits, and four pavés. The Upper Singing Stones site (28H63), located ~240 metres inland above Singing Stones, was discovered in 1993 by Remi Farvacque and named "Agassate" by him (1994:18-19). At the time, Farvacque only reported on the existence of one feature; but our investigations discovered nine petroforms here. Four of these features are compound pavés, three are simple rock rings, and two are simple pits.

It is tempting to speculate that the sound of water running beneath the cobbles may have attracted Aboriginal peoples to construct their petroforms on these three beaches. At Singing Stones, over half of the 21 features are in close proximity to the sound of an underground stream. One quarter of the features at North Singing Stones are directly associated with such a sound, as are all but one of the features at Upper Singing Stones. It is also tempting to accept the more provocative interpretation of these features as being indicative of some religious or ceremonial function, such as vision quest pits (see Carmichael

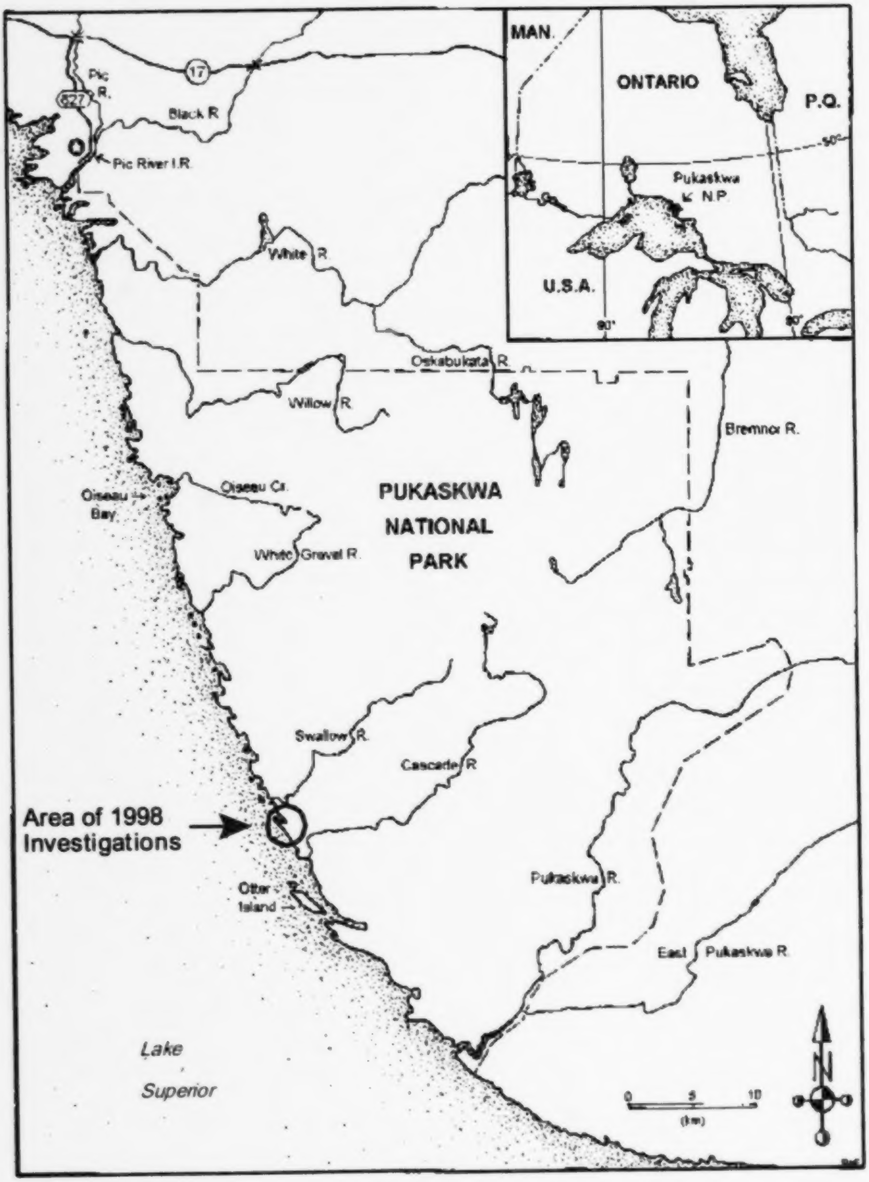
MAN.
ONTARIO
P.Q.
50°
Pukaskwa N.P.
U.S.A.
90°
80°
17
627
Pic R.
Black R.
Pic River I.R.
White R.
Oskabukuta R.
Willow R.
Bremner R.
Oiseau Bay
Oiseau Cr.
PUKASKWA NATIONAL PARK
White Gravel R.
Swallow R.
Cascade R.
Area of 1998 Investigations
Otter Island
Pukaskwa R.
East Pukaskwa R.
Lake Superior
0
5
10
(km)
N

FIGURE 3. Map of Pukaskwa National Park, showing the area of 1998 investigations (original map by R. Farvacque).

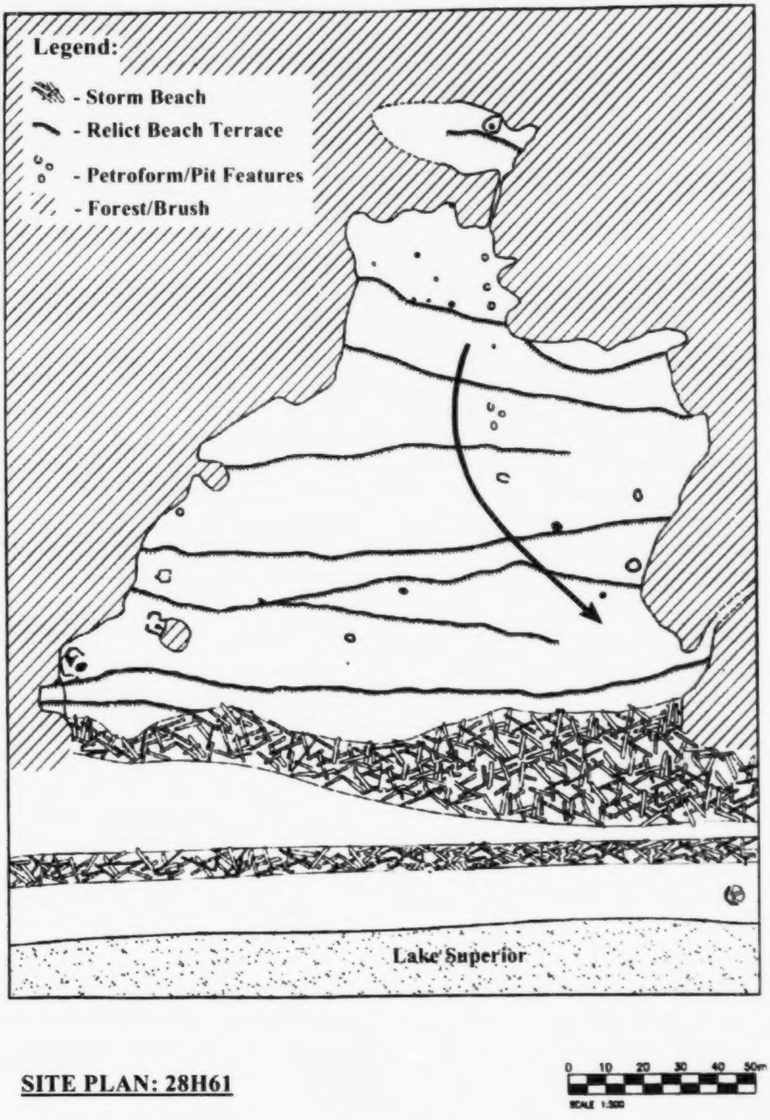
Legend:
- Storm Beach
- Relict Beach Terrace
- Petroform/Pit Features
- Forest/Brush
Lake Superior
SITE PLAN: 28H61
0 10 20 30 40 50m
SCALE 1:500

FIGURE 4. Site plan of the North Singing Stones site (11H61), Pukaskwa National Park, showing the orientation of petroforms following the course of underground water (original map by J.P. Jerome).

1979:97-106), that readily incorporated the mythic symbolism of underground water into the spiritual experience of contacting one's *manitou*.

Many of the features associated with the sound of running water defy easy interpretation into other, more mundane, typologies. At Singing Stones, there are 12 features of an ambiguous nature; four of which directly correspond to audible underground water. At North Singing Stones, over half of the features are ambiguous, with 11 of them clustered near audible underground water (Figure 4). There are four ambiguous features at Upper Singing Stones associated with the sound of water. While many of these ambiguous features could be variant cache pits or hearth rings, most appear to be just too small to serve any readily apparent function. It almost seems as though they had been dug into the relict beaches simply to amplify the sound of running water.

And yet, there are features at each of these sites that do not conform to the remote and ascetic image of a vision quest site (Kohl 1985:234-35). For example, each site has between three and eight habitation structures. The most numerous of such structures are pavés. Pavés are areas of a site where the larger stones have been removed and the remaining smaller stones form a uniform pavement. Pavés are considered to represent living floors associated with wigwams, teepees, tents and/or lean-to structures. In many instances, large stones around the perimeter of these features may have served as weight stones to hold down the edges of such temporary structures. Larger stones are also often used to demarcate or subdivide a large pavement into smaller areas or compartments. There are two pavés at Singing Stones, four at North Singing Stones and four at Upper Singing Stones. Some of these pavés are quite complex. One of the Singing Stones pavés is bifurcated into compartments and has an interior hearth feature. At North Singing Stones, two pavés are bifurcated, one has an interior hearth, and one has a central roof pole support. One of the bifurcated pavés also has a large mound (either an un-opened cache or a collapsed wind break) across its opening and exterior post/pole supports. At both Singing Stones and North Singing Stones, there are also the remains of semi-subterranean dwellings.

In the presence of such clearly prosaic features, there may be another valid, though more profane, interpretation regarding the numerous, small, ambiguous pits at these sites. Stopp, working with cobble beach features in coastal Newfoundland and Labrador, emphasizes the interpretation of circular pits as storage facilities, especially for food, noting that "a cobble beach ... is a low decay environment ..." (Stopp 1994:81). Furthermore, it has been observed that the ambient air temperature is noticeably cooler below the surface of cobble beaches. Temperatures drop even further in the vicinity of underground water. Therefore, it is possible that small pits tend to be clustered near these underground streams to take advantage of natural refrigeration to prolong the storage life of cached biodegradable items, such as meat and other foodstuffs.

Of course, neither a purely spiritual nor wholly secular interpretation is likely correct. Many of Pukaskwa's petroform sites appear to have been repeatedly occupied and there is evidence to suggest settlement pattern changes over time. As such, it is conceivable that some previously ordinary campsites may have, over time, become mystical due to their association with perceived extra-ordinary or "supranatural" phenomena. The form and function of pit features at these sites may have changed as a result. Occurring on bare, unconsolidated cobble beaches, these newer constructions would have been incorporated into the relict cultural landscape of earlier habitation.

ST. LAWRENCE ISLANDS NATIONAL PARK: WEST GRENADIER ISLAND (36H19)

[Emergency Archaeological Research Permit: 98-3H]

In late January, 1998, following the Ice Storm that had passed through the area earlier that month, a utility company serviced damaged electrical lines on Grenadier Island. Without consulting St. Lawrence Islands National Park personnel, heavy equipment was landed, presumably a backhoe or Caterpillar, on the western shore of West Grenadier Island and cut a path through the Park to access private residences and a golf course located east of the Park boundary. The resulting impact to the natural environment was discovered by Park personnel in the spring. Parks Canada archaeologists were contacted to assess potential damage since the cleared path ran through areas containing known archaeological sites, namely a 1904 gazebo and the remains of a nineteenth-century lighthouse keeper's house (Figure 5).

The preliminary survey of the site confirmed that archaeological resources were indeed disturbed. A blade on the machinery had scraped the ground in several areas along its route, upturning soil and unearthing artifacts. Consequently, test excavation was required to determine the extent of damage to the cultural resources. Also, the Park intended to replant trees along the path in hopes of both minimizing the visual impact of the clearing and discouraging the temptation for Park visitors to 'explore' the new passageway. This program of replanting involved the excavation of approximately thirty holes large enough to accommodate developed root balls, and spanned three distinct site areas: the Light Keeper's House site (36H19C), the Historic Pavilion (36H19A), and a previously untested inlet where the utility company had landed their machinery (36H19F).

Work commenced in the area of the Light Keeper's House site. During the second half of the nineteenth century, a manned lighthouse was located atop a rock ledge on the western coast of the island. In 1866, the Public Works Department constructed a house for the lighthouse keeper and his family (Bates 1987:51). This structure, known as "Government House", was dismantled and burnt around 1930. Its foundations, as well as associated middens and a stone-lined well, had been located during previous archaeological survey (Northeastern Archaeological Associates 1994:52; and Ross et al. 1998:151-153). The route had come within 5 metres of this partially exposed house foundation, running through a historic lily patch and privy depression (Figure 6). A surface collection of the artifacts contained within the house foundations was made since there was concern that the passageway would attract the curiosity of Park visitors, potentially resulting in the removal of material from the site.

There were six areas along the cleared path that had been damaged by the heavy machinery's blade. These areas were excavated stratigraphically as 1 x 1 metre units, and all produced material dating to the late 19th - early 20th century occupation of the site. In addition, ten large shovel test pits, measuring approximately 50 centimetres in diameter and 50 centimetres in depth, were dug along the cleared path in the vicinity of the house foundations for the purpose of tree replanting. These pits were strategically placed in areas that receive the most pedestrian traffic, namely along the eastern boundary of the park (bordering the private golf course), and along the junction of the path with the park's nature trail. Nine of these ten pits produced historic artifacts. The four test pits located along the Park's eastern property border proved to be particularly rich in artifacts and were subsequently expanded to 1 x 1 metre units and excavated stratigraphically to discern the nature of the deposit.

In total, 5092 artifacts were recovered from the Light Keeper's House site. Although it is possible that some of the miscellaneous metal fragments and wire nails may be later 20th century material associated with the maintenance of the nearby barn and golf course, the majority of the assemblage can be securely tied to the late 19th to early 20th century occupation of the light keeper's house. Portions of two distinct refuse pits used by the lighthouse keeper and his family were identified within the units excavated along the eastern fence line. Faunal material recovered within these pits included remains of fish, ducks, and a butchered pig and calf (Berg 1998). In addition to the numerous ceramic tableware and glass container fragments, these pits also contained many personal and domestic items, such as clothing fasteners, corset stays, slate writing board fragments, lamp

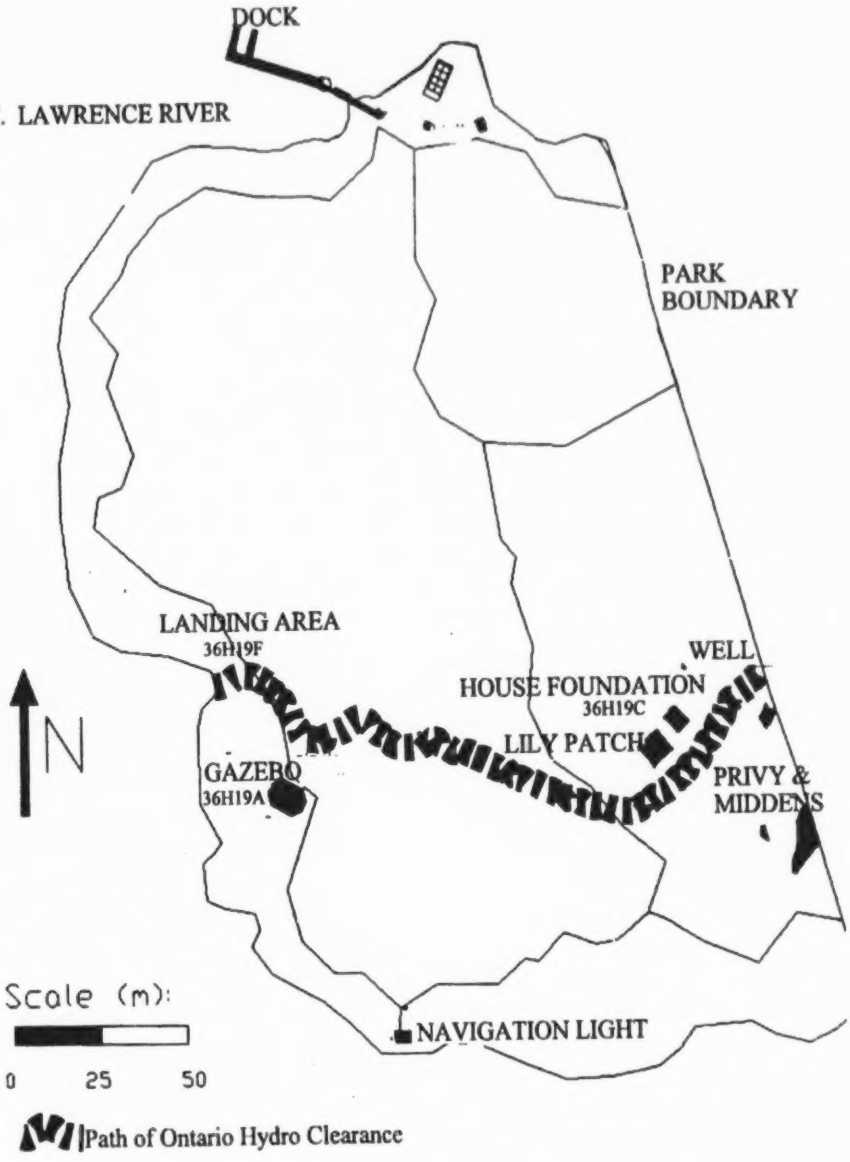
DOCK
ST. LAWRENCE RIVER
PARK BOUNDARY
LANDING AREA
36H19F
WELL
HOUSE FOUNDATION
36H19C
LILY PATCH
GAZEBO
36H19A
PRIVY & MIDDENS
N
Scale (m):
0
25
50
NAVIGATION LIGHT
Path of Ontario Hydro Clearance

FIGURE 5. Route of heavy machinery across West Grenadier Island, St. Lawrence Islands National Park (1997), and the location of the Lighthouse Keeper's (36H19C) and Pavilion Landing (36H19F) sites (original map by S. Sabourin).

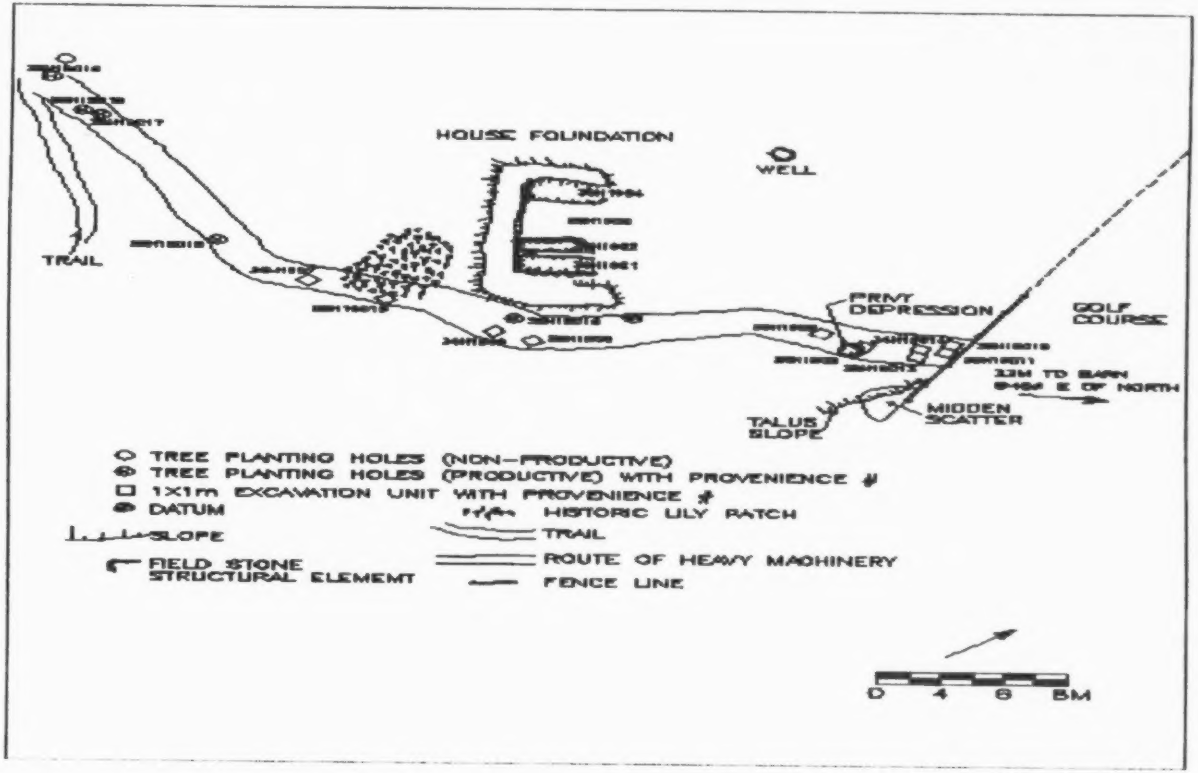
HOUSE FOUNDATION
WELL
TRAIL
PRIVY DEPRESSION
GOLF COURSE
33M TO BARN
E OF NORTH
MIDDEN SCATTER
TALUS SLOPE
TREE PLANTING HOLES (NON-PRODUCTIVE)
TREE PLANTING HOLES (PRODUCTIVE) WITH PROVENIENCE #
1X1m EXCAVATION UNIT WITH PROVENIENCE #
DATUM
HISTORIC LILY PATCH
SLOPE
TRAIL
FIELD STONE STRUCTURAL ELEMENT
ROUTE OF HEAVY MACHINERY
FENCE LINE
0
4
6
8M

FIGURE 6. Site plan of the Lighthouse Keeper's site (36H19C), West Grenadier Island, St. Lawrence Islands National Park, 1997 (map by S. Macdonnell).

parts, and agricultural tools. These pits were capped by a major burn event, with charred remains of wooden boards still discernable. Most likely, this represents the dismantling and destruction of the abandoned house. Further evidence of the razing of the house was found in the units lying to the southeast of the foundations, where the soil was blackened by charcoal and the assemblage was dominated by nails and pane glass. The surface collection within the foundations of the house yielded 409 artifacts, over 90% of which came from one room. Based on the abundance of ceramic tableware and glass container fragments, this room presumably functioned as the kitchen. Consistent with the abandonment and subsequent destruction of the homestead, virtually all of the artifacts collected within the house foundations were highly fragmented and many were burnt.

In the vicinity of the historic pavilion (36H19A), equipment had uncovered two artifacts - - a complete 1950s soft drink bottle and a lithographed vitrified white earthenware fragment. For the purpose of tree replanting, ten shovel test pits were excavated along the cleared path in this area. These pits were mostly sterile, yielding only a few modern artifacts. As such, no new provenience numbers were assigned here.

The final area that required archaeological mitigation was along the narrow shore where the utility company had unloaded their machinery. The Pavilion Landing site, designated 36H19F, is at the mouth of a small valley lying between two high rocky bluffs on the western coast of the Island. The Park wished to have trees replanted along the shore of this valley to discourage boaters from using it for docking. Three of the seven 50 centimetre test pits excavated in this area produced cultural material, mostly consisting of 20th century artifacts relating to the use of the nearby picnic pavilion. Of note, however, was the recovery of an Onondaga chert retouch flake from one of the tree holes. Since evidence of Native use of West Grenadier Island had previously been limited to the area of the northwest bay (Wright 1978:66; and Ross et al. 1998:151-153), it was decided to systematically shovel-test this area along a 3 metre interval to determine the extent of the site. A rough quartz test core, a quartz retouch flake, and a unidentified chert retouch flake were recovered. Although this assemblage is not dateable, the presence of Native material along this small inlet is consistent with the general pattern of transitory site utilization along small bays of the St. Lawrence Islands that was common during the Middle Woodland period, and may possibly date as far back as the Middle Archaic (D'Annibale and Ross 1994b:14-15, Ross and D'Annibale 1996:116).

In addition to augmenting what little was known archaeologically about the Light Keeper's House site and identifying a previously unknown Native site area, the mitigative work conducted on West Grenadier Island in 1998 resulted in the development of "Operational Guidelines for Archaeological Requirements" at St. Lawrence Islands National Park that regularize annual reconnaissance of Park areas prior to development.

TRENT-SEVERN WATERWAY: HEALEY FALLS MITIGATION (45H20,21)

[Parks Canada Permit 98- 7H]

The third year of a multi-year programme to salvage cultural resources at Healey Falls, on the Trent-Severn Waterway, was undertaken in June, 1998, and resulted in the excavation of 88 square metres along the south-central perimeter of the site. Previous archaeological investigations have determined that the low lying areas around the site consist of disturbed deposits containing cultural material (Ross et al.1998:156-159). The site suffers severely from annual inundation from the release of flood waters from the Waterway control dam that is located immediately above the site. The prime objective of our mitigation project, therefore, is to retrieve artifacts from these fluvial deposits before they are lost to further erosion. It is furthermore hoped that these salvage excavations will create a buffer zone between the water runoff channels and an intact portion of the site that is situated on a higher gravel bar, thereby protecting this portion from further erosion.

The formation of fluvial deposits at Healey Falls has been correlated to a series of flooding events and aquatic environments (Farvacque and Ross 1999:17-24). Ongoing annual flooding produces fanning sheet-wash deposits that are formed by slow-moving overflow water that both inundates and cuts erosional channels through the site. Continuous fluvial sedimentation throughout the course of this century, produced by shifting water channel movement, has resulted in well sorted gravel clast deposits in most of the area investigated to date. It is clear, however, that the most devastating flooding event occurred shortly after the construction of the present day control dam. The associated depositional features indicate a high energy water outflow. This particular event can be termed catastrophic, judging by the force needed to rearrange or imbricate large limestone slabs in a west to east direction. The base layer over which these deposits lie denotes an early Holocene lacustrine environment, possibly associated with pond or marshy conditions at the base of the falls. All of these deposits contain a mix of Historic and Native cultural material, including the earliest strata.

The Healey Falls site is a multi-component campsite located at the base of a limestone ridge that forms a natural barrier across the Trent River. Most phases of Native cultural manifestations for south-central Ontario, from Late Paleo-Indian to European contact, have been identified here. No doubt the continuous use of the site by Native Groups is due to its strategic position as a portage stopover point along the river corridor. The recovery of a multitude of intriguing artifacts each season continues to highlight the significance of this site. Whether or not these artifacts were destined for other centres and simply funneled through Healey Falls, they nevertheless attest to an extensive network of procurement and movement of goods, in which this site played a key role. During the mid 19th century, the site was noted for its commercial logging operation. After the construction of the dam, in 1917, the commercial aspect of the area dwindled and a shift to recreational activities occurred.

The bulk of the Historic assemblage at Healey Falls dates to the early 20th century. This corresponds to a major construction phase on this section of the Trent-Severn Waterway between 1911 and 1918. The building of a dam complex, which blocked the natural cascade of the Trent River and replaced it with a new outlet controlled by the present day dam, was the cause of major ecological upheaval and erosional problems in this area. Affiliated construction projects in the vicinity included the building of Locks 15 and 17; the lockmaster's and construction company cottages; a power plant, along with three penstocks and a gate house; and numerous worker's shanties. With these developments to the waterway, the Healey Falls area essentially became the site of a small community. What has been recovered suggests that the excavated area of Healey Falls was on the periphery of this worker's community. The artifacts associated with this period fall primarily under the food consumption, preparation, and storage class; with personal apparel related artifacts following in abundance. Although a log flume was located along the north side of the original Trent river channel, from the 1840s to the 1880s, no securely dateable material from this logging phase was recovered this season.

Contact phase or Fur Trade period artifacts continued to be recovered in 1998. These consisted of some seed-type beads, a clasp knife blade, and two spall type French gunflints. Perhaps the most noteworthy find is a nearly complete limestone pipe bowl in the form of a human head effigy (Figure 7) that is thought to date to this period. These artifacts indicate the continued use of Healey Falls as a portage point, perhaps serving as a voyageur campsite along the Trent River.

Diagnostic artifacts for nearly every major period of Native occupation in Ontario continued to be collected this year. The recovery of a Hi-Lo point firmly establishes a Late Paleo-Indian presence here (Figure 8). The Early Archaic period is manifested by more Kirk Corner-Notched points. Among the Middle Archaic finds, there is a ground slate point fragment. As ground slate points continue to be recovered, this site is proving to be unsurpassed in the production of this artifact type. The Late Archaic period is the component best represented in the 1998 assemblage, with Snook

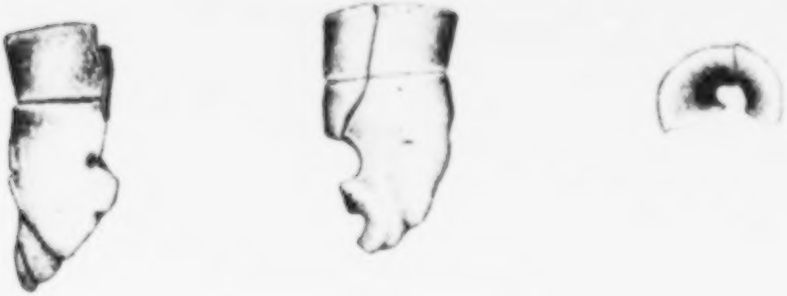

FIGURE 7. Limestone human effigy pipe bowl, Healey Falls (45H21), Trent-Severn Waterway (drawing by K. Scott).

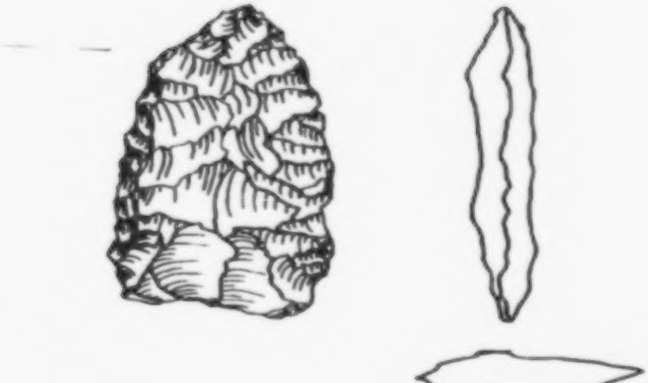

FIGURE 8. Late Paleo-Indian "Hi-Lo" projectile point, Healey Falls (45H21), Trent-Severn Waterway (drawing by C. D'Annibale).

Kill, Normanskill, and Orient Fish Tail points, as well as a large number of stemmed points in the process of manufacture from local chert and other fine grained materials. The Early Woodland period was represented by a Meadowood biface/end-scraper and steatite bowl fragments. With the additional fragments of steatite recovered this year, the complete profile of a flat bottomed bowl with a notched rim was identified. This is a truly unique artifact for Ontario! Middle Woodland occupation is marked by the recovery of dentate and vertical linear stamped pottery sherds. Pseudo-Scallop Shell decoration is a minor type and only a few examples of incised, punctate, and cord-wrapped stick decorative techniques were found.

As with previous excavation results, faunal remains and chlorite schist flakes dominate the artifact assemblage. Chlorite schist is a local raw material used intensively at Healey Falls in the manufacture of axes. A large quantity of plain blanks and extensively retouched preforms (two of which measure over 40 centimetres) were retrieved. Another major activity at Healey Falls was the working of bone for the production of tools and ornaments. This year, three harpoons, bone awls, utilized bone, and a canine tooth pendant were recovered (Berg 1999:4-9).

The importance of the Healey Falls site in Native lifeways is best represented by the continuous occupation of this site from Late Paleo-Indian times onward. Repeated utilization and evidence of varied activities suggest a dynamic locale where major local industries were supplemented by the movement of exotic material. Finds, such as those from the Early Archaic Period, ground slate projectiles and steatite, illustrate the importance of this site to the study and understanding of archaeology in Eastern Ontario. Continued archaeological mitigation will concentrate on the excavation of disturbed deposits in the hope of salvaging and safeguarding what remains of this valuable site.

NIAGARA NATIONAL HISTORIC SITES: NAVY ISLAND-MITIGATION OF THE PARKER HOMESTEAD SITE (49H167, 49H168)

[Parks Canada Permit 98-4H]

Excavations on Navy Island in May, 1998, marked the final season of archaeological mitigation to salvage cultural resources at the Parker Homestead site from severe shoreline erosion. A total of 44 square metres was excavated on the extreme north-western part of the site (Figure 9). This is an area of markedly higher terrain than the rest of the Parker site. Disturbance from late 19th/early 20th century ploughing, extensive throughout the rest of the site, was not as evident in this area, possibly because of the difference in topography. As it turned out, this elevated terrain was, at least in part, the remains of an historic mounded earthwork or berm that had been constructed out of excavated "C" horizon clay. Unfortunately, bank erosion has destroyed the original extent of this feature. The remnants of the earthwork measured 4 metres in length, 1 metre in width, and 23 centimetres in height.

This earthwork seems to have formed part of a War of 1812 military entrenchment along the raised shore, overlooking the Niagara River. It is positioned in direct line of sight to Fort Schlosser on the New York State side of the river. Furthermore, this position was strategically located at the shortest distance between the two shores, making this a key military position and vital observation post. The entrenchment is likely a rifle pit, associated with the British military use of Navy Island to monitor American military operations. Various documented accounts report the presence of between 20 to 200 British troops from the 41st, 49th, and 100th regiments stationed on the island from the beginning of the War of 1812 until 1814 (Dennis Carter-Edwards: personal communication).

One of the intriguing artifacts recovered from this military occupation is a U.S. First Regiment of Artillery button, dating to the period 1802-1814. This may suggest some type of American incursion onto the island, possibly associated with the U.S. victory at the Battle of Chippawa in 1814. Another intriguing recovery dating to this period presents the possibility of tracking the movement

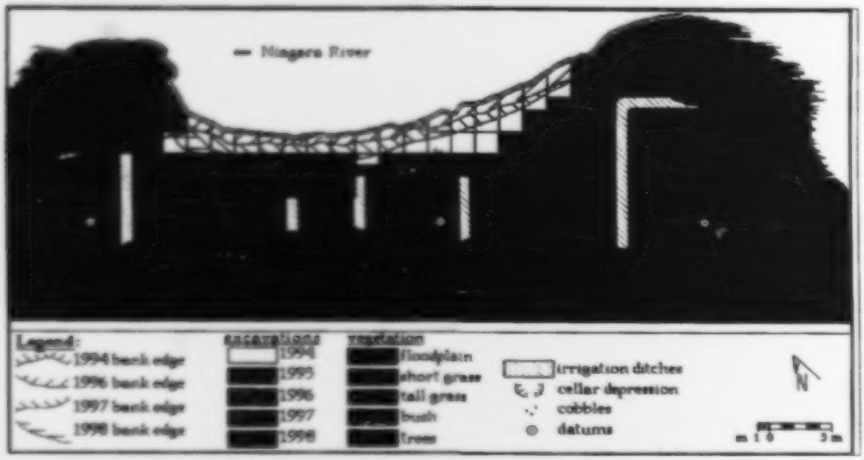
Niagara River
Legend:
1994 bank edge
1996 bank edge
1997 bank edge
1998 bank edge
excavations
1994
1995
1996
1997
1998
vegetation
floodplain
short grass
tall grass
bush
trees
irrigation ditches
cellar depression
cobbles
datums
N
m 1 0 3 m

FIGURE 9. Site plan of completed excavations, 1994-1998, at the Parker Homestead site on Navy Island, Niagara National Historic Sites (original map by R. Farvacque).

FIGURE 10. Adena biface and Late Archaic Stemmed and "Ace-of-Spades" projectile points, Parker Homestead (49H168), Navy Island, Niagara National Historic Sites.

of a single individual through the archaeological record. The artifact is a creamware plate base inscribed with the initial "M". A spoon inscribed with the same mark had been recovered a few years earlier from the eroded waterline (Nafus 1998:118). This initial has also been identified on the base of a similar plate that was excavated from a War of 1812 context at Fort George National Historic Site, in Niagara-on-the-Lake (Sattelberger 1998:27-30). Although the practice of marking personal property was common, the chances that the same British officer or enlisted man can be traced through the archaeological record from two separate sites is extremely rare.

Native material associated with the Late Archaic and Early Woodland occupations of the site was essentially sealed and protected from historic and modern disturbance by the War of 1812 earthwork. The 1998 excavation area proved to be far more productive in terms of lithic artifact frequency than the rest of the site. The lithic material consisted exclusively of Onondaga chert. The debitage suggests final biface reduction and tool refurbishing. Some evidence for initial biface manufacture was also apparent, but this does not appear to be as pronounced an activity as at the the IBM 22 site, further up river (Ross et al. 1998:163-165). The Native assemblage indicates that the Parker Homestead site was primarily utilized in the processing of resources. The frequency of scrapers, drills, wedges, spokeshaves, and utilized flakes increased significantly as a result of this season's excavation. Diagnostic artifacts from the Early Woodland phase of occupation included Vinette 1 pottery and an Adena biface. Late Archaic material continues to be represented by a variety of stemmed projectile points, including an Ace of Spades and Genesse types (Figure 10).

Salvage excavation since 1994 has revealed a transitory use of the site during the Late Woodland and early European contact phase. Evidence has also been recovered to suggest that this site was utilized during the 1760s transition from French to British occupation of the region. It was during this period that the British built a naval dockyard on the island. This dockyard is one of the two nationally significant commemorations assigned to Navy Island by the Historic Sites and Monuments Board (HSMB) of Canada. Although the location of the 18th century British Naval dockyard has not yet been positively identified, it is apparent that the Parker Homestead site was at least visited during this crucial period along the Niagara frontier. Contact period and 18th century artifacts from among this year's recoveries include a Seneca rim sherd; a cut piece of trade silver; French spall and British blade type gunflints; buckles; buttons; Saint Onge ware; British slip ware; and Dutch pipe fragments.

The other HSMB commemoration for Navy Island pertains to the 1837 Mackenzie Rebellion occupation of the island. Unfortunately, the excavations at the Parker Homestead site have failed to produce diagnostic artifacts from this event. The majority of the historic material dates to the subsequent homestead period, between the 1840s and 1870s, which is believed to be associated with Thomas Parker.

Excavation of the last remnants of the Parker house was completed this year. The major structural element remaining from the building consisted of a cellar. The total excavated area of this feature amounted to 4 x 2 metres, with a height averaging 1 metre. The northern section, as well as what was left of the house superstructure, had already eroded out of the bank prior to the commencement of the shoreline mitigation project. As in previous seasons, the general artifact content in the fill of the cellar consisted primarily of structural and construction related debris. Food preparation, consumption, and storage artifacts were also abundant. Evidence for some of the activities occurring on site was also represented through artifacts associated with personal adornment and hygiene articles; writing; hunting; smoking; games; and fishing. Besides these artifacts, faunal remains, including fish, fowl, domesticated species and commercially butchered bone, present evidence of a varied subsistence base during the mid 19th century homestead period. Additional homestead related features were identified, including various pits and a load bearing wooden support post next to the cellar similar to those discovered in previous seasons (Ross et al. 1998:161).

Archaeological mitigation has salvaged otherwise irretrievable material through systematic excavation of the eroding shoreline. This process, which involved modifying the slope of the shoreline by lessening its grade, served to create a buffer against the severe bank undercutting and erosion. As a test case for addressing cultural resource management issues arising from the problem of shoreline erosion at Navy Island, the Parker Homestead site has proven that, although this natural process cannot be stopped, it nevertheless can be held in check long enough to conduct meaningful archaeological research.

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